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Mr. Charles Sheath—75 Years of Railway Service

THERE can be but few men who have retained their active interest in any great commercial undertaking for so long a period as 75 years, and yet that is the astonishing record of Mr. Charles Sheath, formerly Secretary of the South Eastern Railway Company and a Director of the Southern Railway Company from its formation up to the present time. When he joined the Secretary's office of the old S.E.R. in 1863 as a lad of 14, the Secretary of the company was the famous Dr. Samuel Smiles, whose writings on such subjects as "Thrift" and "Self-Help" were in the best mid-Victorian strain. Smiles had also produced his well-known series of popular engineering biographies, and shortly after Mr. Charles Sheath joined his staff he was also associated with the late Edward MacDermott in establishing *The Railway News*, one of our constituent papers, the first issue of which appeared on January 2, 1864. It is noteworthy that Dr. Smiles continued his active literary interests up to the time of his death in 1904 at the advanced age of 91, for Mr. Sheath has borne a similar torch. Throughout his long career Mr. Sheath's work lay in the Secretary's department and he himself became Secretary in 1899. He continued to hold that office until grouping and even then his energy and ability remained unimpaired, and for a time it was thought that he might have put up a strong competition against younger men for the secretaryship of the Southern Railway Company. When he decided against this course the directors and shareholders had no hesitation in electing him a Director of the Southern Railway Company and he has continued to occupy that seat until the present time. Some notes on his career are included on page 316.

The G.W.R. Meeting

At the Great Western Railway meeting on Wednesday Viscount Horne had little good to say of the results for 1938 except the economies during the second half of the year which are being continued this year. The severe recession in trade which began to make itself felt after the first quarter of 1938 and increased in intensity for the rest of the year, was the main cause of the fall in receipts, which was the heaviest traffic decline experienced by the company for a century. In addition, domestic difficulties, such as the heavy flood damage in Devon and Wales and the two signal box fires outside Paddington had caused trouble in working. It is noticeable that the fall of £1,842,752 in net revenue in 1938 exceeded the amount required for the 4 per cent. dividend distributed in respect of 1937. To those stockholders who asked for a larger withdrawal from the contingency fund in order to maintain the 3 per cent. dividend, the Chairman showed that since 1923 the company had distributed for that purpose £8,210,000 when it was not being earned. While regretting the loss of the full trustee status which had been enjoyed for about 70 years, he felt sure that in circumstances like the present the shareholders would see the necessity of adequate reserves. It said a great deal for the people who had negotiated the "square deal" that the Minister of Transport had expressed the opinion that it would be the greatest detriment to the country that anything should happen to the railways, because they formed the iron backbone of the country's economic security.

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The Week's Traffics

The rate of decrease in the traffics of the four main-line railway companies continues to slacken, and for the past week it was £96,000, against £136,000 and £163,000, respectively, in the two previous weeks. Compared with the corresponding week in 1938, passenger train traffics are up £10,000, and merchandise and coal are respectively down £72,500 and £33,500. In the seventh week of 1938 there was an increase of £36,000 over the corresponding week in 1937. Traffics to date in 1939 are £18,909,000, showing a decrease on 1938 of £1,352,000 or 6.67 per cent.

	7th Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	%
L.M.S.R.	- 1,000	- 33,000	- 5,000	- 39,000	- 544,000	- 6.60
L.N.E.R.	+ 6,000	- 31,000	- 15,000	- 40,000	- 59,000	- 8.48
G.W.R.	- 1,000	- 5,000	- 12,000	- 18,000	- 239,000	- 7.00
S.R.	+ 6,000	- 3,500	- 1,500	+ 1,000	- 50,000	- 2.01

Great Northern (Ireland) goods train traffics for the year to date show an increase of £5,750, and passenger train traffics a decrease of £1,300. At this time a year ago there was an increase of £5,050 on the passenger side and a decrease of £3,050 on the goods side. Mersey traffics are £630 up on the year to date.

* * * *

Southern Features

Electrification benefits in earning increased revenue were referred to by Mr. Holland-Martin in his annual speech yesterday to the stockholders of the Southern Railway. Last year Southern gross passenger receipts, alone of the four main-line railways, showed a slight improvement, due to the company's electric services, all the most recently instituted of which showed increases of $5\frac{1}{2}$ to $13\frac{1}{2}$ per cent. over the previous year. Another popular Southern feature which earns more and more is the Dover—Dunkirk train ferry. Of the £74,000 increase in steamboat receipts nearly £10,000 was earned by it. Its patronage is so great that six new sleeping cars have had to be ordered for the through London—Paris service. The use

for cargo and for motor vehicles of the train ferry is also being more widely appreciated; the number of cars carried was 4,600 last year as compared with 1,637 in 1937, which seems amply to justify the provision of the special arrangements made to drive cars direct on to and off the vessels at each port. Although the Southern, in common with the other railways, suffered from the trade depression, because it is predominantly a passenger line it has been able to maintain its financial position best, appreciation of which fact was apparent at the meeting.

* * * *

Overseas Railway Traffics

Among Argentine railways the most notable traffic feature during the past fortnight has been the increase in Central Argentine receipts, which improved to the extent of £85,236 during that period. Another improvement worth noticing is the increase of £16,811 on the Buenos Ayres Western in the two weeks. The Central Uruguay has, on the contrary, reduced its increase by £3,816. Increases to date on the Great Western of Brazil and the Leopoldina Railways are respectively £14,800 and £15,949, aided by a slight improvement in exchange.

		No. of Weekly Week Traffics	Inc. or Decrease	Aggregate Traffic	Inc. or Decrease
Buenos Ayres & Pacific	34th	112,903	+ 682	2,736,047	- 111,227
Buenos Ayres Great Southern	34th	181,948	- 26,923	4,678,597	- 216,067
Buenos Ayres Western	34th	85,707	+ 7,940	1,460,483	- 92,123
Central Argentine	34th	156,266	+ 40,487	3,854,076	- 401,320
Canadian Pacific	6th	439,800	- 17,000	2,836,400	- 147,000
Bombay, Baroda & Central India	47th	266,000	- 5,850	7,536,450	- 94,575

Canadian Pacific traffics have gone down £23,800 in the past two weeks.

* * * *

Liverpool Overhead Railway Company

During the year 1938, the number of passengers carried was approximately 138,000 less than in 1937, although there was an increase in traffic receipts of £2,007 due to the revised scale of fares, and to the improved first class accommodation having attracted additional passengers. Season ticket receipts also showed an increase of £42. Total receipts from passengers were £70,401, a net increase of £2,049, first class being up £1,183 and workmen £2,424 up, with a decrease in third class of £1,558. Working expenses increased by £2,982 and the operating ratio went up from 92.18 per cent. to 93.72 per cent. Operating results for three years are compared as follows:—

	1936	1937	1938
Gross receipts	£ 62,723	£ 68,486	£ 70,542
Revenue expenditure	62,348	63,130	66,112
Miscellaneous receipts	5,756	5,657	5,955
Total net income	6,131	11,013	10,385
Debt interest	6,755	6,755	6,755
Carried forward	Dr. 15,122	Dr. 11,164	Dr. 7,534

The company possesses 38 electric rail motor vehicles, and 19 electric passenger carrying vehicles.

* * * *

British Industry's Inadequate Exhaust

When Herr Hitler said "Export or die" he probably referred to Germany's present necessity to obtain imports of certain vital things of which she is not possessed and for which she can pay only by equivalent exports. This country, on the other hand, has such a vast unused productive capacity that we seek to export while discouraging imports—which is paradoxically called striving after a "favourable balance of trade." It was in this sense that Lord Dudley spoke to the Press at a luncheon last week in connection with a preliminary inspection of the British Industries Fair at Castle Bromwich. Although on the Friday before the official opening many of the exhibits were incomplete, there was nevertheless a most impressive display of what British industry and ingenuity can produce

but cannot sell to anything like the satisfaction of the producers, let alone the would-be consumers. We are reminded at such demonstrations of an old fashioned engine with a large boiler and cylinders, and an enormous theoretical tractive effort, yet with such inadequate valves and exhaust arrangements that at speed only a small fraction of the locomotive's power can be developed.

* * * *

A London Transport Taxation Saving

Almost coinciding with the publication of our editorial last week on the subject of London Transport and taxation, came the announcement that, on April 1, the Minister of Transport will reduce the cost of the public service vehicle licence from £3 to £2. The reduction will not apply to trams and trolleybuses. Road transport managements in general will benefit by about £50,000 a year, and the London Passenger Transport Board in particular by about £6,000. As we stated, however, in the above-mentioned note, three-quarters of the £325 the board pays, on an average, in taxes every year, for each omnibus, consist of fuel duty. Until, therefore, the fuel duty—now 9d. a gallon—is similarly reduced, taxation will continue to make very heavy demands on the board's traffic receipts.

* * * *

More Argentine Nationalisation Proposals

Despite the fact that for some considerable time to come the nationalisation of the Argentine railways is, for many reasons, hardly a practicable proposition, schemes for bringing the lines under State ownership continue to emanate from that country's legislators. The latest project of this sort is embodied in a Bill presented to the Chamber of Deputies by a group of Conservative members, providing for the purchase of the Entre Rios and Argentine North Eastern Railways under conditions similar to those ruling in the case of the Cordoba Central. The purchase value, in pounds sterling, at 4 per cent. interest and one per cent. amortisation, is fixed at 61.3 per cent. of the capital as estimated by the National Railway Board to be the assets of the two companies, always providing that such sum proves to be less than the actual value of the said assets, after deducting such devaluation as may affect them. The Government is also authorised to acquire the existing materials in stock belonging to the two railways at a price not exceeding £198,254 sterling in the case of the Entre Rios Company, and £82,402 in the case of the North Eastern, subject to the result of their valuation. Payment of the sum agreed upon as the cash quota would be made by means of Credito Argentino Interno bonds bearing 4 per cent. interest and 1 per cent. amortisation, cumulative, or out of revenue; and the balance defrayed by means of State Railway bonds.

* * * *

"The Largest Locomotive in Europe"

Claimed by the builder to be the largest and most powerful steam locomotive in Europe, the new 4-8-4 type streamlined express engine recently completed at the works of Fried. Krupp A.-G., Essen, and illustrated and described on page 312 of this issue, is admittedly a remarkable machine. We must, however, qualify the claim by restricting it to passenger locomotives, for even in this country there is a Garratt locomotive on the L.N.E.R. with a tractive effort greater by 18,110 lb. We have also here a semi-streamlined 2-8-2 three-cylinder express engine, viz., that of Sir Nigel Gresley on the L.N.E.R.; the German 4-8-4, by virtue of the larger gauge dimensions permissible in respect of height and width, is, of course, more powerful, but may on general grounds be regarded mainly as a larger example of an already well tried type.

Designed for hauling express passenger trains of 650 tons loading at speeds of 75 m.p.h. on the level and 37 m.p.h. on gradients of 1 in 100, it develops a tractive effort, at 85 per cent. of the boiler pressure, of 54,830 lb., obtained by the use of three 20½-in. by 28½-in. cylinders transmitting motion to eight-coupled driving wheels 6 ft. 6¾ in. in diameter and supplied with steam at 284 lb. per sq. in. by a boiler having 4,535.5 sq. ft. of heating surface and a grate area of 54.2 sq. ft.

* * * *

Swedish Private Railways in 1937-38

The financial results of working these lines during 1937-38 compare favourably with those for the previous fiscal year, as may be seen from the figures below in millions of kroner:—

	1936-7	1937-8
Traffic receipts	120.6	131.8
Working expenditure	92.9	101.4
Operating surplus	27.7	30.4
Net profits	12.2	13.3

These figures represent net results of all the 91 railways collectively, having a total route mileage of 5,443 miles. Actually, 20 of the 91 concerns showed deficits, but these totalled only Kr. 600,000. On all the private lines the shareholders profits for the year amounted to Kr. 7,000,000 or an average return on capital of 4.7 per cent. Kr. 4,700,000 were added to the reserves. The net profit was the highest obtained in post-war years. Particulars of the traffic working during the last two years are as follow:—

	1936-37	1937-38
Passengers carried	36,200,000	37,900,000
Goods carried (tonnes)	77,100,000	86,200,000
Passenger-km. run	860,000,000	906,000,000
Tonnes-km.	1,606,000,000	1,830,000,000

Reductions in rates and fares and considerable increase in the price of coal affected the results.

* * * *

New Air Company Licensed

Licences granted by the recently-constituted Air Transport Licensing Authority include permission for Great Western & Southern Air Lines Limited to work services linking the Midlands with the South and West, London with the Isle of Wight, and Penzance with the Scilly Isles. This company was formed towards the end of last year, as announced in our December 9 issue, to work certain routes hitherto provided for on behalf of the Great Western and Southern Railways by Railway Air Services Limited, and others where services had been maintained by Channel Air Ferries Limited. G.W. & Southern Air Lines has been licensed to ply on the former R.A.S. route between Manchester and Brighton, omitting, however, the stops at Liverpool and Gloucester; the Brighton—Bristol line hitherto jointly worked by Channel Air Ferries and R.A.S. has also been licensed, but with Bournemouth substituted for Southampton as a stopping place and minus the Bristol—Cardiff extension. Similarly, Cardiff is omitted from the Bristol—Lands End line (formerly R.A.S. and Channel Air Ferries joint) as now licensed. Being granted powers to work the Channel Air Ferries Heston—Isle of Wight route, the new company will bring back to railway air interests an air line with lucrative possibilities at summer week-ends.

* * * *

Optical A.T.C. System in Germany

Although almost all the A.T.C. equipment on the German State Railway is of the inductive pattern, Dr. Bäseler's optical system is in use on some sections. According to an article by Reichsbahnrat Krauskopf in

the *Bahn-Ingenieur*, small scale experiments were made near Munich in 1927, near Zossen in 1929, and between Saalfeld and Probstzella in 1934. In the last-mentioned year a large scale trial was undertaken on the Berlin—Stettin line with 10 express locomotives, and it has now been decided to equip the Aitrang—Röhtenbach section of the Munich—Lindau line, involving four more locomotives. The value of the system can be judged only when practical results have been collected from these trials, under all conditions of weather and other factors. It is possible to meet the operating programme laid down for A.T.C. in Germany either by the inductive or the optical apparatus, but the former will probably, we think, be preferred in the long run, the equipment required for the lineside apparatus in the optical system being much more involved than in the case of the inductive system. In his article—the last of a very interesting series on the whole subject—Herr Krauskopf pays a tribute to the excellent work done for the Reichsbahn by the signal manufacturers in developing A.T.C. to its present state of efficiency.

* * * *

Locomotive Crossheads

The locomotive crosshead has been characterised as more troublesome than any other important detail of the engine. Many are in favour of the single-bar type of crosshead, the wearing surfaces of the slipper and bar being relatively high above rail level and therefore less susceptible to wear from accumulations of grit and dirt than the bottom bars on multiple types. With a suitably designed crosshead, the bar cannot be supported at the point of maximum thrust of the connecting rod, which is approximately the centre of the crosshead travel, and that is the ideal point of support as regards deflection. With only one slide bar per cylinder to machine, set up, and line up, there is naturally a saving both in first cost and maintenance. This subject was discussed by members of the Institution of Locomotive Engineers on the Western Australian Government Railways, and a report of the discussion appears in a recent issue of the journal of that institution. One of the speakers pointed out that slide bars should in his opinion be designed to have a maximum deflection of 3/64 in., together with a bearing pressure on the crosshead slippers of 60 lb. per sq. in., if possible with a maximum of 80 lb. per sq. in.

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L.M.S.R. Herbert Jackson Medal and Prize

It may be recalled that some time ago the L.M.S.R. struck a medal in memory of the late Sir Herbert Jackson, K.B.E., F.R.S., to be awarded annually to a member of the company's research staff for the best written account of an investigation carried out in the company's laboratories during the year. Sir Herbert Jackson was an original member of the L.M.S.R. Advisory Committee on Scientific Research, on which he served from 1930 until his death in 1936. He played an invaluable part in guiding the earlier work of the committee, and especially in encouraging the many members of the company's scientific staff with whom he came into contact. Accordingly the directors felt it would be appropriate to perpetuate his memory by the foundation of an annual prize for the encouragement of scientific research. The first award of the Herbert Jackson medal and prize was made last year to Mr. A. S. Davison of the Crewe Chemical Laboratory (as announced in THE RAILWAY GAZETTE of May 20, 1938) for a paper on the "Chemical and Biological Examination of Water Supplies." We are now able to reproduce the design of this medal, which will be found on page 329.

London & North Eastern Railway Company

IN respect of the year 1938, the net revenue of the company showed the substantial decrease of £3,454,275 over that of 1937, the total figures being £6,653,167 against £10,107,442. With the balance brought forward from last year (£83,926), the available sum is £6,737,093, practically all of which is absorbed by providing for fixed charges and the payment in full of the dividends on the guaranteed stocks. The remaining balance is only £86,054, and accordingly the directors are not able to propose any dividend on the preference and ordinary stocks of the company. Actually the gross receipts from railway and ancillary businesses and net receipts of joint lines and miscellaneous show a decrease of £2,723,248, as the figures for 1937 and 1938 respectively are £57,892,237 and £55,168,989, but there have been heavy increases in expenditure, totalling in round figures £1,766,000, and it is only as the result of very substantial economies achieved by schemes for improved working, together with the reduction in expenditure due to the decreased volume of traffic handled, that an offset of approximately £1,035,000 has been achieved, leaving the net increase in expenditure at £731,027. Increases in salaries and wages due to the restoration of the 1½ per cent. cut and to other improved conditions granted to the staff as the result of the National Wages Board awards, amount roundly to £698,000; the increased cost of fuel and materials generally to £783,000; and the increased volume of work in the maintenance of way and works to £285,000. The following table shows dividend distributions during the past nine years, from which it will be seen that 1938 is the first occasion in respect of which no distribution has been made to the holders of the 4 per cent. first preference and 5 per cent. redeemable preference stocks:—

	1930	1931	1932	1933	1934	1935	1936	1937	1938
	%	%	%	%	%	%	%	%	%
Pref. Ord. 5% ..	½	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2nd Pref. 4% ..	4	1	Nil	Nil	Nil	Nil	½	1½	Nil
1st Pref. 4% ..	4	4	1	2	3½	3½	4	4	Nil
Redeem. Pref. 5% ..	5	5	1½	2½	4½	4½	5	5	Nil

Comparisons between the figures of receipts for the years 1937 and 1938 are affected by the fact that 5 per cent. increase in rates and fares imposed on October 1, 1937, was effective for only the last three months of the former year, whereas it operated over the whole of the latter. The 1938 receipts therefore benefited by the increase in comparison with previous years; even so, substantial decreases are shown in all sections. For example, receipts from passenger train traffic declined by £268,000, and the number of passengers carried (excluding season ticket holders) was actually 17,767,000, or 8.31 per cent., below the figure for the previous year. There was a considerable loss of short-distance passenger business, which is particularly susceptible to road competition, and in the interests of economy numbers of unremunerative passenger trains, mostly on branch lines, were withdrawn. Long-distance traffic has been maintained, although the experience of the L.N.E.R. so far is that the extension of holidays with pay does not appear to have added materially to passenger travel. The total figure of passenger receipts for 1938 (£17,357,000) is no less than £1,740,000 below the total of 1929. Freight traffic has suffered from the recession in the heavy industries, and the total tonnage carried decreased by 15,046,000 tons or 11.08 per cent. in comparison with 1937. Receipts last year for merchandise and livestock at £16,405,000 were £1,493,000 below those for 1937 and £5,448,000 below 1929.

Net expenditure on capital account for the year 1938 amounted to £3,160,655, and capital expenditure for the current year is estimated at £5,279,000, of which over £4,050,000 are for works scheduled to the Railways (Agreement) Act, 1935, or the London Passenger Transport Board (Agreement) Act, 1935, and £660,000 for additions and improvements to rolling stock. Good progress continues to be made with schemes being carried out under the Railways (Agreement) Act, 1935. The largest of these projects is the electrification of the lines between Manchester, Sheffield, and Wath, where the work on the engine sheds at Darnall and Wath is well advanced; the permanent way work is in hand and contracts have been placed for a substantial part of the equipment required. The electrification works which are being carried out on the London suburban lines of the company under the London Passenger Transport (Agreement) Act, 1935, are also making satisfactory progress. All the works undertaken by the company as a result of the remission of passenger duty granted under the Finance Act, 1929, have been completed for a total expenditure of £1,498,653, and £150,000 has been transferred from general reserve to a special reserve against the depreciation of these works and also works under the Development (Loan, Guarantees, and Grants) Act, 1929. Apart from expenditure under the passenger duty scheme, the Development (Loan, Guarantees, and Grants) Act, 1929, and the Treasury Agreements, the company incurred an expenditure of £539,757 on works estimated to yield savings or produce additional revenue. The economy resulting from this expenditure amounted to £110,634, and the additional revenue obtained totalled £29,892. Taking the actual savings and additional net revenue together, the total net revenue secured has been £140,526, or equal to 26 per cent. on the cost, thus abundantly justifying such capital expenditure on modernisation and improvement work. Since 1923 up to the end of last year no fewer than 2,452 schemes have been carried out and reported upon. The total expenditure incurred has been £5,860,000 and the annual savings and additional net revenue resulting therefrom have been £1,703,000, equal to 29 per cent. on the outlay.

The following table compares the results of the past three years:—

	1936	1937	1938
	£	£	£
Total expenditure on capital account	351,736,607	352,589,512	355,750,167
Gross receipts from businesses carried on by the company	53,943,907	56,430,244	53,565,814
Revenue expenditure on ditto	45,146,124	46,799,159	47,539,822
Net receipts of ditto	8,797,783	9,631,085	6,025,992
"J" Joint Lines—company's proportion of net revenue	315,956	441,841	610,126
Miscellaneous receipts (net)	992,404	1,020,152	993,049
Miscellaneous charges	964,748	985,636	976,000
Net revenue	9,141,395	10,107,442	6,653,167
Appropriation to contingency fund	—	150,000	—
Interest on loans and debenture stocks, &c. .. .	4,274,263	4,222,274	4,220,487
Dividends on guaranteed and preference stocks .. .	4,890,890	5,717,667	2,430,552
Balance after payment of preference dividends .. .	Dr. 23,758	17,501	2,128
Surplus (+) or deficit (—) .. .	—23,758	+17,501	+2,128
Appropriation from reserve	50,000	Nil	Nil
Balance brought forward from previous year .. .	40,183	66,425	83,926
Balance carried forward to subsequent year	66,425	83,926	86,054

Great Southern Railways Company

GROSS receipts for the year 1938 show a decrease of £49,538 as compared with those for the year 1937, notwithstanding the fact that all traffic charges as from January 1, 1938, were subject to a five per cent. increase. In gross expenditure there was an increase of £39,982, so that net receipts from the railway and ancillary businesses were £89,520 lower. With a decrease in miscellaneous receipts total net income was down £95,238, and, in addition, fixed charges have gone up by £27,803, mainly because of the absence in 1938 of special credits in 1937 which included income tax surplus. In consequence, no dividend is recommended for the present on the 4 per cent. guaranteed preference stock. There is, however, a note at the foot of the balance sheet referring to a contingent asset arising in regard to the company's appeal against the valuation of its railway hereditaments. It is the intention of the directors to recommend the payment of dividends in respect of the year 1938 on the 4 per cent. guaranteed preference stock, if and when this asset becomes available and the financial condition of the company justifies such recommendation.

Total railway receipts in 1938 were £3,166,128, a decrease of £35,135 in comparison with 1937, and the railway working expenditure of £2,916,167 showed a net increase of £21,419. Total receipts from passengers were £844,485, a decrease of £1,542. First class (£58,304) were down £5,059, and third class (£786,181) were up £3,517. Parcels and mails (£442,287) brought in £1,240 more. In the merchandise receipts of £1,280,148 there was an improvement of £21,989, but this was more than offset by decreases under live stock, coal, and other minerals, so that the total goods train receipts of £1,856,800 were £33,998 lower. Among the ancillary businesses the road transport net receipts of £61,562 showed a decrease of £27,799, the profits of £10,627 from the hotels department were £4,143 lower, and the loss on the canal and docks was £1,024 greater. Results of the whole undertaking are compared in the following table:—

	1936 £	1937 £	1938 £
Total expenditure on capital account	30,863,778	31,054,309	31,119,145
Gross receipts from businesses	4,366,923	4,329,326	4,279,788
Revenue expenditure on ditto	3,894,671	3,924,660	3,964,642
Net receipts of ditto	472,252	404,666	315,146
Miscellaneous receipts	36,540	41,685	35,967
Total net income	508,792	446,351	351,113
Interest, rentals, and other fixed charges	348,401	366,321	394,124
Dividend on guaranteed preference stock	155,454	77,727	Nil
Surplus or deficit (+ or -)	+ 4,937	+ 2,303	- 43,011
Proportion of compensation under Irish Railways (Settlement of Claims) Act, 1921	—	—	6,101
Brought forward	29,670	34,607	36,910
Carried forward	34,607	36,910	—

The ratio of railway traffic expenditure to railway traffic receipts was 92.41 per cent. in 1938, against 90.71 per cent. in 1937. In operating expenses there was a net reduction of £1,033 under locomotive running, due mainly to a saving of £5,205 on steam engine fuel, and traffic expenses were down £3,930. There was also a reduction of £6,031 in general charges. The amount charged to rolling stock maintenance was £32,702 greater. Fifty-nine wagons were completely renewed in 1938, compared with none in 1937. To permanent way maintenance the amount charged was only £716 higher. The length of track renewed was 24 miles 41 chains in 1938, against 23 miles 29 chains in 1937, but the miles of line maintained were 2,049 miles 60 chains, compared with 2,076 miles 19 chains in 1937. This difference is due to a reduction of 26 miles 39 chains in minor and branch lines connecting with the Athlone-

Westport section. The report refers to the many infringements and evasions by road hauliers of the provisions of the Road Transport Act, 1933, and mentions that an exhaustive statement of the company's position, supported later by evidence, has been submitted to the Government tribunal which is engaged in an inquiry covering the whole transport position in Eire.

* * * *

Great Northern Railway Company (Ireland)

ALTHOUGH the total receipts of £448,943 from passengers during the year 1938 were £1,364 lower than those for 1937, there was an improvement of £549 from workmen's tickets and of £2,285 from seasons—entirely in third class. Parcels and mails brought in £121,934, a decrease of £1,812. Total goods train receipts amounted to £486,200, a decrease of £6,364. In the merchandise net receipts of £358,777, however, there was an improvement of £9,405, with an increase of 73,791 tons in the quantity conveyed. Livestock receipts were £1,899 better, at £73,464, but the earnings of £36,683 from coal, coke, and patent fuel were down £12,244, with a decrease of 39,341 tons conveyed, and the receipts £17,276 from other minerals were £5,424 lower. Total railway receipts were £1,101,329, a decrease of £8,340, but railway expenditure increased by £60,397 to £1,071,794, leaving railway net receipts £68,737 lower, at £29,535. The net receipts of £9,694 from passenger road services in Eire showed an improvement of £6,583, but the profits from the hotels department were £1,804 down. The accompanying table compares the general financial position for the past three years:—

	1936 £	1937 £	1938 £
Total expenditure on capital account	10,052,929	10,052,929	10,052,929
Gross receipts from businesses	1,305,845	1,320,073	1,311,038
Revenue expenditure on ditto	1,189,955	1,214,308	1,269,231
Net receipts of ditto	115,890	105,765	41,807
Miscellaneous receipts (net)	35,428	33,725	28,811
Total net income	151,318	139,490	70,618
Interest, rentals, and other fixed charges	115,099	115,229	131,188
Dividend on guaranteed stock	34,771	34,771	—
Balance	1,448	Dr. 10,510	Dr. 60,570
Appropriation from general reserve	—	—	25,000
Balances released from miscellaneous accounts	—	9,062	1,301
Brought forward	—	1,448	—
Carried forward	1,448	—	Dr. 34,269

Mileage run by the company's steam locomotives has fallen from 4,467,530 to 4,419,531, and by diesel rail buses has fallen from 83,991 to 58,563. Diesel railcar mileage has, on the other hand, increased from 254,185 to 393,011. Locomotive running expenses have advanced from £241,594 to £258,119, but in the traffic expenses of £301,313 there has been a saving of £1,615. It is noted that provisions for the renewal of railway assets were made in 1938 on the basis of estimated present-day replacement cost. The expenditure charged to maintenance of way and works showed an increase of £24,319, and the amount charged to maintenance of rolling stock showed an advance of £25,312.

As has already been reported, the operation of the Road and Railway Transport Act (Northern Ireland), 1935, did not attain the intended results, and consequently the whole matter of public transport was ordered by the Government to be investigated afresh by a Commissioner and by a Committee of Inquiry, whose reports have since been published and referred to a Joint Select Committee of both Houses of Parliament for further consideration.

The Government of Eire has appointed a tribunal to inquire into the present position of public transport, and, in particular, the circumstances which have led or contributed to the present unfavourable position of the railways operating in that area.

* * * *

German Railway Difficulties

THERE has been in the press lately a good deal of comment on the present condition of the German railways, with emphasis on the shortage of rolling stock and other equipment to cope with the enormously increased traffic of the last few years. An article in *The Financial Times* last Monday enlarges on some of the difficulties with which the Reichsbahn has been faced during the last few years. As the following table from the preliminary review of the German State Railway for 1938 shows, the volume of freight traffic was nearly doubled between 1933 and 1938, and much of this increase is accounted for by the exploitation of domestic real wealth in preference to imports.

GOODS TRAFFIC EFFICIENCY, 1929-1938 (DAILY LOAD, 1938 = 100)

Item	1929	1932	1933	1936	1937	1938
Train-km.	83	60	64	82	91	100
Wagon-axle-km. . . .	87	56	60	84	94	100
Size of trains	105	93	94	103	104	100
Wagons in use	101	66	70	90	98	100

Thus the rapidly growing use of low-grade German iron ore instead of imported high-grade Swedish and Spanish ore has meant a heavy additional load on the railways. The German ore has to be carried from the Salzgitter district in Central Germany, where the new Hermann Goering steelworks are now being built, to the blast furnaces of the Ruhr, where it is used instead of imported ore carried by water *via* Rotterdam and up the Rhine. Similarly, the reconstruction projects of Berlin and other big cities have raised the demand for building materials to such an extent that they have to be carried much greater distances. Then the building of the Siegfried line of fortifications on the French frontier, and the mobilisation of the army during the Czech crisis made heavy additional calls on the railways. *The Financial Times* correspondent suggests as an explanation of the unprepared state of the Reichsbahn for these new and heavy demands that the administration was of the old school which "regarded economy as a virtue." On the other hand, those responsible for the Four-Year Plan were free from all inhibitions in their lavish expenditure on armament and ambitious industrial schemes.

Another way of putting it might be that those in control of the development of the new Germany give an order of priority to their functions different from that to which we are accustomed. Apparently they first calculate what the physical productive capacity of a territory may be, and make arrangements to exploit it to the full, leaving to a secondary position the accountancy of these physical realities. If the word economy is used in its true meaning as defining careful management, they are seen to be real economists, that is, they conduct the country in the most economical sense by employing in the most efficient manner their real assets of men, material, and equipment. Such a sudden reversal of the old order of priority almost inevitably gives rise to a certain amount of confusion in its early stages; but its ultimate benefit appears to be fairly obvious, and the march of events is driving other countries, our own included, along the same road. Thus, although our rearmament programme is still discussed mainly in

terms of money, it is being carried out in terms of reality, and the vastness of the sums which it is calculated represent the realities of the case is not being allowed to hold up the programme.

* * * *

Sir Thomas Williams

THE incursions of the old L.N.W.R. into the South Wales area were responsible for bringing to Euston a personality which otherwise would have belonged in all probability either to Paddington or to one of the local Welsh railways. Sir Thomas Williams was born at Newport, Monmouthshire, and by the time that he began his business career the L.N.W.R. was well established at various points along that side of the Bristol Channel. Thus in 1876 he entered the service of the former L.N.W.R. and held various positions in the South and Central Wales districts to such good effect that he was appointed District Goods Manager at Warrington in 1902. Five years later he came to London as Goods Superintendent at Broad Street, in succession to Mr. F. H. Dent who had been appointed Goods Manager of the South Eastern & Chatham Railway. We believe we are correct in saying that Sir Francis (as he afterwards became) Dent accepted this appointment with the reversion to the General Managership when the then General Manager, Mr. Vincent Hill, retired, because he saw little prospect of further advancement with the L.N.W.R. Thus, when Mr. Williams became Goods Superintendent at Broad Street, it was thought by many that he had reached the zenith of his career. But it was not to be, for only four years later he was appointed Assistant to the General Manager dealing primarily with labour questions and work in connection with the Conciliation Boards, and while holding that position he had many delicate problems to solve. His associations with the staff side of railway service at that period undoubtedly had much to do with his tactful dealing with matters that arose subsequently. At the beginning of 1914 he became Chief Goods Manager, and in February, 1917, when the late Sir Guy Calthrop was appointed Coal Controller, Sir Thomas Williams became Acting General Manager. On the death of Sir Guy Calthrop, Sir Thomas Williams was appointed General Manager in March, 1919, and in August of the same year received the honour of knighthood. About that time his son, Mr. W. Howard-Williams, became General Manager of the Central Argentine Railway, and when we published a photograph of the two (in our issue of December 17, 1920) we were able to comment that never before had father and son been contemporaneously General Managers of two such important railways as the L.N.W.R. and the Central Argentine. Sir Thomas Williams retired at the end of 1920 and was then elected to a seat on the board of directors. Since grouping he has continued to serve as a Director of the L.M.S.R. until the present time.

* * * *

Southern Railway Signalling

WE have had occasion frequently to comment upon the speed with which large resignalling schemes are carried out on the Southern Railway. The article on pages 304-311 describes the principles underlying all recent installations, and the comparatively settled policy of the company in this respect will, we feel sure, be of considerable interest to railway officers, especially at a time when several new systems of power signalling are in evidence, albeit in a somewhat experimental stage. On the Southern Railway, for all interlockings, large and small, a locking frame of the orthodox type is used; in the full-sized mechanical apparatus and all-electric power frames alike, if conditions do not permit the operation of any

function, the lever concerned cannot be pulled. Where this principle is extended to include layouts of the magnitude of Waterloo and Victoria, not a few problems arise in connection with the illuminated track diagram. There is a limit to the distance from which a signalman can read such a diagram. We understand that a number of experiments have been made with full-sized models with a view to avoiding the duplication of all or part of the illuminated diagram. So far these investigations have borne no fruit, but, after all, a duplicate diagram in a very few exceptionally large installations is not a high price to pay for a standardised system that enables the resignalling of a station such as Victoria to be carried out as little more than a matter of routine. Compactness in any signal box is admittedly an ideal in itself, and, while control panels with relay interlocking and route switching have been adopted elsewhere, the standardisation by the Southern Railway of the all-electric locking apparatus has enabled the largest frames to be constructed in three sections, arranged as three sides of a square, and a comparable degree of compactness is thereby attained. The future alone can show which of these two ideas will obtain the lead in this country.

Equally full attention has been given to the speeding up of the work of installation. The shop-wired apparatus cases used for the intermediate section signals provide an interesting example, but an even more valuable time-saver is, we understand, regularly used where a large number of points is being changed from manual to motor operation. Power supply is made available early in the course of installation, and every electric point machine is brought into service from the time it is fixed down, control being effected by means of temporary circuit controllers worked off the existing mechanical lever tails. Permanent connections are in due course made to the new frame, and on the opening night the only changeover work involved is to remove the fuses from the temporary circuit and insert them in the permanent one. No comment on these important works would be complete without a reference to the neat design of signal box adopted; indeed one well known South Coast resort was so impressed that its new "streamlined signal box" was included among the attractions offered to prospective holiday makers.

* * * *

Problems of Locomotive Design

MR. W. A. STANIER, in choosing as the title of his presidential address last Wednesday to the Institution of Locomotive Engineers "Problems Connected with Locomotive Design," at once created an atmosphere of expectancy. The President, whose address had been deferred from last year owing to his visit to India as a member of the Pacific Locomotive Committee, announced at the outset his proposal to concentrate on the locomotive of normal type and to consider some of the problems which still remain to be solved and what is being done to meet them, so far as one railway company is concerned. When due recognition has been paid to the several attempts made to depart from the conventional types, the improvement found possible in the basic locomotive during the past decade was referred to as astonishing. Mr. Stanier discountenanced any spirit of complacency as to what had already been done and said there was every encouragement to look to the future for a continued process of refinement and development. Safety, reliability, availability, and efficiency are the cardinal requirements in any locomotive design. Of these the first two have always been paramount, whilst it is now being realised that the financial gains of increased availability are no less important than those of efficiency.

The increased size and weight of locomotives and their higher speeds are bringing into prominence all over the world the necessity for studying the locomotive more closely as a vehicle. The lateral forces exerted by the engine on the track are hardly of less importance than the vertical loads, and the question of the guiding of locomotives and the flange forces exerted is coming into prominence. All the experiments so far carried out in connection with guiding the locomotive on the track have drawn attention to the fact that it is the leading coupled wheels at which the highest flange forces are attained, and the problem consists of so choosing the arrangements and value of the guiding elements that the flange forces even of a heavy locomotive at high speed remain well within the capacity of the track on both curves and straight. Considerable attention was paid to this important aspect of locomotive design by the author, who, before passing on to other matters, remarked that on the L.M.S.R. a thicker flange is used on both bogie and hind truck wheels in order to reduce the clearance between the wheel and the rail.

Mr. Stanier referred to the problem of the hot axlebox as being largely a matter of care in manufacture, refinement in design, and effective dust shielding; the last, indeed, is a major problem for which no actual 100 per cent. effective remedy has yet been found. In dealing with problems associated with locomotive valve gears, he remarked that with the higher valve velocities which have become common due to longer valve travels and higher running speeds, it is now necessary to pay increased attention to wear of parts; here the results obtained by the use of needle roller bearings were stated to have been highly satisfactory. For one thing they reduce lubrication requirements to a minimum and help to maintain the accuracy of the steam distribution. Front-end design is a point worthy of the closest attention, and Mr. Stanier treats the smokebox not as a separate entity but rather as a necessary part of the boiler. Although countless attempts have been made to derive formulae to give the best arrangement to any engine, these appear to be essentially impracticable. Certain broad principles have, of course, been established from the tremendous volume of work already carried out, but the necessity of relating the blastpipe and chimney design to the characteristics of each individual design of boiler is abundantly clear.

Considerable interest attaches to remarks made by Mr. Stanier on the subject of steam ports and passages, and internal streamlining. The work of Chapelon has drawn the attention of locomotive engineers all over the world to the importance of internal streamlining of the steam passages all the way from the regulator to the blastpipe, and the address described some experimental work covering the actual passage of the steam past the valve into and out of the cylinder. We agree with Mr. Stanier in his conclusion that the older and more simple methods, sufficient as they may have been in the past, are no longer adequate to meet the conditions of modern locomotive design. Engineering instincts and commercial common-sense appraise at their full value the measures now being taken to establish a stationary testing plant on which locomotives differing in size and design can be tested under conditions of scientific exactitude, and problems of a complex nature solved.

DISTRIBUTING A.R.P. SHELTERS.—Delivery to distributing centres of Home Office air-raid shelters has begun this week. The L.M.S.R. began the delivery of 8,000 shelters in London and the provinces on Wednesday, and the G.W.R. is making deliveries of the shelters in London and Birmingham.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

The Gotthard Railway

Swiss Federal Railways and Swiss State Travel Bureau,
Carlton House, 11B, Regent Street, S.W.1

February 21

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Under the auspices of the Swiss Government a comprehensive list is being compiled of objects and documents, such as prints, photographs, plans, written descriptions, concerning the famous Gotthard railway line and tunnel. I would be extremely grateful if readers of your paper in possession of such documents would be kind enough to afford me an opportunity of studying them, preferably in London, that they may be included in the record which is being prepared in Switzerland. Utmost care will be taken of any documents kindly submitted, and they will be returned to their owners almost at once.

I am faithfully yours,

V. P. CERESOLE,
Manager

"Truth about the Railways"

Rossington Road,
Hunter's Bar, Sheffield,

February 17

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—You may have thought that I was very inaccurate in my letter to you last week (published in THE RAILWAY GAZETTE of February 10) when I omitted to include in my figure for first class fare-paying passengers the receipts from season ticket holders, but what about the article which I enclose from this week's *Picture Post*? I was enticed to buy it by a poster advertising the "Truth about the Railways."

Part of the Safety in Signalling section would find an appropriate place in your Scrap Heap columns. Surely the photograph entitled Robert Holland Martin is really Mr. William Whitelaw? And is not the drawing of what is called Euston in fact meant to depict the building of St. Pancras?

Yours, &c.,

R. BUTLER

[Our correspondent is quite correct in his strictures on the article entitled "The Railways" published in *Picture*

Post dated February 18. The instances he mentions are among a number of obvious inaccuracies which are greatly to be regretted in an article that describes itself as one of a series of "authoritative surveys of our great national institutions." The portrait entitled Robert Holland Martin is undoubtedly one of Mr. William Whitelaw. The illustration described as "This is what Euston looked like in February, 1868," is in fact a reproduction from page 160 of *The Illustrated London News* of February 15, 1868, of a woodcut called "Works of the Midland Railway Terminus, Euston Road." This picture, which we reproduce herewith from a copy in our files, of course, shows the building of St. Pancras station.—ED. R.G.]

Canals into Railways

Essex House,
Essex Street, Strand,
London, W.C.2

February 21

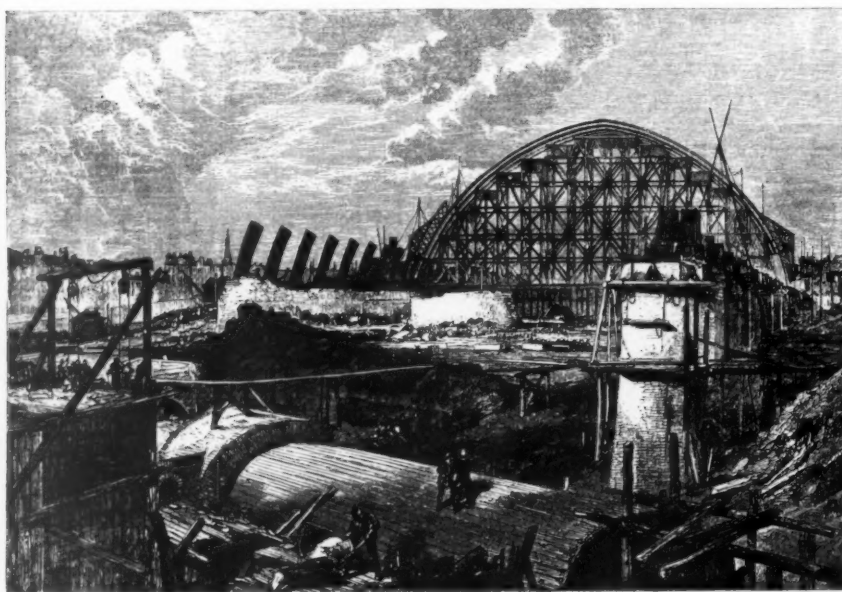
TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In the First Report of the Royal Commission on Canals, 1906, there appears (Appendix I, Statement 5) in the statement furnished by Sir Herbert Jekyll of derelict canals particulars of the following canals which have been taken over by railways:—

Name of canal	Disused portion miles	Remarks
Alford Canal	6	Site used for railway.
Andover Canal	22	ditto
Carlisle Canal	11	ditto
Glastonbury Navigation and Canal	14	ditto
Gravesend and Rochester Canal ..	3	ditto
Hereford and Gloucester Canal ..	34	ditto
Kidwelly and Llanelly Canal .. .	3	ditto
Leominster Canal	46	Part of site used for railway.
Monmouthshire Canal (part) .. .	1	Site used for railway.
Newport Pagnell Canal	4	ditto
Oakham Canal	15	Part of ditto.
Shropshire Canal	4	Site used for railway.
Trent and Mersey Canal	4	ditto

Yours faithfully,

KENNETH BROWN



Left: Reproduction of a full-page woodcut which appeared in "The Illustrated London News" of February 15, 1868, and which was entitled "Works of the Midland Railway Terminus, Euston Road." The accompanying text matter explained that the picture was taken from the south side of the site next to Euston Road and having King's Cross on the right hand. The tunnel in the foreground is the line connecting the old Midland Railway at Camden Square to the Metropolitan Railway at King's Cross

PUBLICATIONS RECEIVED

Aluminium Bronze.—Issued by the Copper Development Association, Thames House, Millbank, S.W.1. 6½ in. × 8½ in. 152 pp. Illustrated.—This publication is concerned with the copper-aluminium series of alloys containing copper as the main constituent. Such alloys are generally known as aluminium bronzes, and they possess many interesting and somewhat unusual features which suit them for certain special applications. The volume is printed on highly surfaced paper, and contains a great deal of useful information on the subject with which it deals, incorporating a number of tables and illustrations. It is only after perusing a work of this kind that one realises the wide scope within which aluminium bronze can be applied. Its mechanical properties are of an unusually high order, and may be varied over a wide range by adjustment of the composition, the amount of working, and by heat-treatment. The statement that the use of these bronzes will be extended in the future can readily be accepted in the light of the facts set forth in the book which lies before us.

Die Entwicklung der selbsttätigen Signalanlagen der S-Bahn (The Development of the Automatic Signalling Equipment on the Berlin City and Suburban Lines).—By Reichsbahnoberrat Dobmaier. Berlin, 1938: Reprinted from *Glaser's Annalen*, Nos. 11 and 12, Vol. 122. 8½ in. × 11½ in. 16 pages. 25 illustrations, half-tones and diagrams.—Although introduced prior to the war, on both the Berlin and Hamburg elevated lines, and—in a very special form—on the Langen suspended mono-rail between Barmen and Elberfeld, automatic signalling did not appear on any State-owned lines in Germany until 1926, when an installation using the ordinary semaphore and disc signals was brought into service on the Berlin-Lichterfelde line. With the adoption of electric traction on the City and Ring lines in Berlin, it was decided to instal automatic in place of manual signalling, and the first sections were opened in 1928, using three-aspect light signals. From that time development has been continuous, there being some 116 km. (72 miles) of route now equipped. The present publication gives a detailed account, moderate in length, of the various stages of the work, with particulars of the circuit schemes adopted from time to time, as experience was gained, and the modifications made in the apparatus. The double light aspects—there is one aspect comprising four lights—led to a great many lenses being used in the original design of signal, but the change to the relay, or internal spectacle type, now used in all new work, has much simplified matters.

Great efforts have been made, with no small degree of success, to cut down the amount of material, especially

copper, lead, and steel, required to make the apparatus, which has necessitated some skilful designing. Line control circuits have given place to the polarised principle for the control of the various signal aspects, the signal and train stop proving, and so on, while the design of the relays has been greatly improved and power consumption cut down. Similar attention has been bestowed on the track equipment, apparatus cases, control apparatus on station platforms, and equipment in power signal boxes. All signals are fitted with train-stops, of which about 1,000 are now in use. These are motor-driven and act mechanically on the train apparatus. In an endeavour to simplify the mechanism and effect considerable economies, a magnetic train stop has been designed and is now on trial. These, and a number of other very interesting details, are treated most clearly in Herr Dobmaier's article, which is to be recommended to all who follow with attention the signalling progress being made on the Continent. The well-selected illustrations enable every point to be followed with ease.

University of Illinois Bulletins.—The following bulletins have been issued by the Engineering Experiment Station of the University of Illinois, Urbana:—No. 101, Summer Cooling in the Warm-Air Heating Research Residence with Cold Water. By Alonzo P. Kratz, Seichi Konzo, Maurice K. Fahnestock, and Edwin L. Broderick. Price 90 cents. No. 102, Investigation of Creep and Fracture of Lead and Lead Alloys for Cable Sheathing. By Herbert F. Moore, Bernard B. Betty, and Curtis W. Dollins. Price \$1.

Holidays, 1939.—This new programme of Pickfords Travel Service is a fascinating publication with its 350 pages detailing tours and holidays to suit persons of all tastes and purses. It is divided into three sections: (i) Continental holidays; (ii) British holidays; and (iii) Cruises and steamships. Switzerland, "the playground of Europe," takes pride of place in the Continental holidays section; indeed, it is with Swiss tours that the firm of Pickfords has excelled itself. Those to whom time and money are no object will turn at once to the third section, beginning on page 237, in which are given details of cruises and Empire and world tours. The middle section will appeal to those whose motto is "See Britain first." The programme is, of course, profusely illustrated.

Track and Line Relays.—Circular No. 118 from the Siemens & General Electric Signal Co. Ltd. describes the company's tractive armature d.c. neutral line relays. The design of these instruments conforms fully with the appropriate British Standard Specifications, and the selection of materials used in manufacture has been the

subject of great care and extensive experiment. Relays are supplied alternatively for shelf or bracket mounting. The specification includes moulded bakelite platform for mounting components, with a dustproof casing for protection of moving parts. Moving contacts are silver-tipped, and the coils, wound on formers, are interchangeable. Relays can be supplied wound for any resistance up to 3,000 ohms.

Geared Couplings.—We have received from the Moss Gear Co. Ltd., of Crown Works, Tyburn, Birmingham, a catalogue describing geared couplings for compensating misalignments in shafts that have to be coupled end-on. This type of coupling allows endwise and lateral float to both shafts, thus greatly increasing the life of the connected machinery. A feature of the design is the ability to transmit the full power of the connected machines with a smooth uniformity that guarantees maximum efficiency. The parts of the coupling are few, its simplicity of design giving great durability. Shocks caused by sudden reversals are borne without damage to the couplings or the machines they connect.

An Improved Radial Drilling Machine.—William Asquith Limited, of Halifax, has brought out a brochure describing the firm's "O.D." type radial drilling machine, the popularity of which has already been established by its high production combined with economy. Perhaps the most noteworthy feature of the machine is the concentrated control, in which all controls are grouped on the spindle slide. This enables the operator to have them all under his eye when he is working. Other advantages of the "O.D." are described in the brochure, and there is a table of dimensions and weights that those intending to order will find very useful. The value of the publication is enhanced by the many excellent illustrations of the machine and its exclusive features.

Woodworking Machinery.—It is just over 101 years since the firm of Thomas Robinson & Son Limited was founded at Rochdale, and an illustrated booklet recently issued by the firm surveys the advanced and versatile types of woodworking machinery supplied by the firm at the present time. One of the modern developments referred to is the multiple vee-belt drive for planing and moulding machines, giving advantages in choice of speed and economical power consumption. In sawing machines, the firm has pioneered by the application of automatic hydraulic feed for an electric cross-cutting and trenching machine; and by introducing a totally-enclosed band saw. Other additions to the Robinson range illustrated are a motor-driven planer and a light surfacer, both of clean and compact design. A special job illustrated is an all-electric double-end tenoner, one of two recently supplied by the maker to the South African Railways & Harbours for working heavy timbers used in carriage and wagon construction.

THE SCRAP HEAP

To mark the occasion of the one hundredth anniversary of practical photography this year, the National Association of German Amateur Photographers is arranging an international photographic exhibition. Some 2,000 exhibits from all over the world will be shown at this exhibition during July and August.

* * *

Recently a small building on the down platform at Broxbourne, L.N.E.R., has been demolished in connection with alterations at this station. Though in modern times used as a porters' room, this building was a link with the earliest days of railways, for it was the signal box of the original station built by the Northern & Eastern Railway nearly 100 years ago.—From *"The Railway Observer."*

* * *

A correspondent writes regarding our note about rail glands last week: "I have read your note about rail glands, and shall be interested to know whether these glands are tightened up by means of a monkey wrench?"

* * *

A former Bishop of St. David's arrived at a country station only to find that the train had just left. He remonstrated with the porter, and asked why could not the train have been held up till he had reached the station. To this the porter replied: "You may be a bishop, sir; and you may be a D.D., sir; but if you were a churn of milk, sir, the railway would think more of you, sir."—From the *"Western Mail."*

* * *

An Austrian refugee in Paris spent two months travelling round and round in the intricate network of the Paris Metro. His permission to stay in France had expired and he was afraid of the police. Friends brought him food, and during the hours while trains were stopped he slept somewhere in hiding underground. But in the end the police found him in his underworld, and in addition to his illegal stay he will be charged now with having used a single Metro ticket for a journey the length of which, in happier circumstances, would have taken him round the world.—From *"The Railway Review."*

* * *

The opening of the Union Pacific and Central Pacific railroads in 1869 made the transcontinental tour the world's premier travel novelty. Thousands of Easterners overcame their fear of starvation, derailment, and wild Indians, and courageously set out for California. At Omaha, eastern terminus of the Union Pacific, daily crowds of

adventurers milled about the long station platform, checking baggage and buying tickets for the new Pullman Golden Palace cars. All were constantly beset by clamorous pedlars of remedies for car-sickness, solicitors of accident insurance (at disturbingly high rates), and salesmen offering lucrative investments in business property, farm-lands and mines. Having forced their way through the bedlam to the waiting train, tourists thrilled with anticipation as the engineer released long blasts from the whistle. A series of rattling crashes ran down the train as the couplings tightened and cars jerked into motion. Expresses maintained an average of a little over 20 miles an hour across the plains, ample for the light equipment and uneven roadbed. At nightfall the suspended kerosene lamps were lit, and porters accomplished the ingenious conversion of seats into sleeping quarters. In summer the sweltering travellers faced the alternative of keeping doors and windows shut and enduring semi-asphyxiation, or opening them to clouds of alkali dust which swirled up from the roadbed and keenly irritated the throat and lungs. Except in mid-



"Going Great Western"
Very exclusive, in
green/gold 6 gns.



"Peep-Peep"
Assorted colours
and tones 8 gns.



"Southern Maid"
In green or black.
Very chic. 5 gns.



"Minerva"
For the mature type
In black only 7 gns.



"Feltham"
Stovepipe Model
Black only 5 gns.



"Bufferette"
Indispensable
Red/silver 7 gns.

SPRING MODELS

by C. Hamilton Ellis

summer, the passage of the Sierra Nevadas was a chilly experience. Neither steam pipes nor vestibule cars were yet in use, and at each opening of the doors the heat from the wood stoves was swept out by an icy blast.—Condensed from *"The Big Four"* in *"The Reader's Digest."*



"The Game in the Train," a photograph taken by Mr. A. W. Clarke with an Ensign camera, won a prize in the Amateur Photographers' Competition, organised by "The Sketch."

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

NEW ZEALAND

New Trains

Completely new trains have recently been provided for the Auckland—New Plymouth service (via the Stratford—Okahukura deviation). These are of air-conditioned luxuriously appointed and streamlined coupé type stock, consisting of 29-seater first class and 44-seater second class carriages.

The coupé or semi-sleeper is the most modern type of stock in New Zealand; these vehicles have been built at the Otahuhu workshops. Each coach has four two-berth sleeping compartments, one *de luxe* two-berth sleeping compartment, making a total of ten berths, and a smoking compartment with eleven comfortable seats of an unusual design. Each sleeping compartment is equipped with hot and cold water, shaving tables, a variety of lights (including two over each berth, one for reading and the other giving a subdued glow), and almost every fitting for which a use could be conceived down to a bottle opener. The floors are carpeted and the windows are attractively curtained. Metal fittings are in chromium. All the compartments are of generous size, but the *de luxe* one is of almost double the size of the others. In addition to the standard fittings it has two comfortable chairs.

The seats in the smoking compartment can be adjusted to four sitting positions and in addition are fitted on turn-tables, so that they can be turned in any direction. The windows are unusually wide, but they do not open and the usual ventilators on top of the roof are missing, as the air is filtered before it is admitted, and each carriage is kept at an even, comfortable temperature.

Higher Rates and Fares

An all-round increase of 10 per cent. in fares and freights, including charges for the conveyance of goods by road, came into force on December 11, 1938. As a result of a careful survey of the effect of the increase as applied to typical cases it is not expected that any material loss of business will occur. Comparison of the new rates with those in force in Australia show the former in a very favourable light. According to the Minister of Railways, the only alternative was a reduction in salaries and wages, and he considered that the quality of, and recent improvements in, the department's services and facilities justified the decision taken.

Tariffs are also to be reviewed with a view to simplifying the classification and rates, in line with present-day requirements, including a flattening out of the higher rates for general merchandise. This decision will bring

about the elimination of the two highest classes, "A" and "B," and their merging with the next lower classified rate (Class "C"). This adjustment will be introduced in the new financial year on April 1, 1939. It will bring the method of assessing railway freights more closely into line with the practice followed by road operators. This decision follows the purchase of those long-distance competing road services which the Government has already decided upon. It also fulfils the promise made on behalf of the Government that a simplified method of railway rating should be introduced as soon as the purchasing tribunal had completed its work, which is now nearing an end so far as those services already listed for purchase are concerned.

CANADA

The Royal Train

The newly-decorated train to be used by the King and Queen during their tour in Canada next summer, will, it is understood, have a livery of royal blue with silver lining. It will run in two sections, one of 11 cars, for the use of Their Majesties and their suite, and the other, of 12 or 13 cars, to be used as a pilot train and to convey officials, journalists, and photographers. No new coaches are being built, but private saloons used by Government functionaries and railway executives will be remodelled, redecorated, and refurbished for the Royal visitors. Each will bear the Royal crest in silver. The King and Queen will each have a private coach, separated by general lounge and dining cars. Equipment will be supplied jointly by the Canadian Pacific and Canadian National Railways, and the trains will use both lines, according to convenience, on the outward and return journeys. Parliament will be asked to vote \$425,000 to cover expenditure connected with Their Majesties' visit, of which \$350,000 is for transportation expenses in connection with the operation of the royal and pilot trains.

Travelling Photographic Laboratory

A photographic coach will form one unit of the pilot train to be used for the Royal tour. It will be a fully-equipped travelling laboratory for the development and printing of films and still photographs without loss of time, but its use will be restricted under the supervision of Capt. F. C. Badgley, M.C., Director of the Canadian Government Motion Picture Bureau, to one authorised commercial enterprise. The precedent in this connection was established on the occasion of the visit to Canada about ten years ago of H.R.H. the Prince of Wales, now the Duke of Windsor.

RHODESIA

Year's Record Revenue

All previous records have been surpassed by the total earnings of the Beira & Rhodesia Railways for the year ended September 30, 1938, and for the first time in the history of these railways has the revenue exceeded six million pounds. A comparison of the revenue and expenditure figures for the last two years is set out below:—

	Years ended September 30		Increase or decrease
	1937	1938	
Total earnings	5,730,677	6,094,596	+363,919
Gross operating expenditure
Net operating revenue	2,680,224	2,666,844	-13,380

The total tonnage carried during 1938, excluding the Vryburg—Bulawayo section, was 3,108,396 tons, an increase of 102,655 tons over the previous year, and the train-miles run rose by 267,646 to a total of 5,764,548 miles. The tonnage of coal and coke traffic increased by 43,622 tons to 948,646 tons in 1938, but it is noteworthy that the tonnage of the principal other minerals, chrome ore, asbestos, copper, and zinc, dropped from 649,370 tons in 1937 to 608,065 tons in 1938. This decrease was largely confined to chrome ore and zinc, due to the reduced production from the mines. The general increased prosperity in Southern and Northern Rhodesia resulting from the high price of gold, developments at the copper mines in the north, and satisfactory tobacco and maize crops, brought an increase in import traffic to the railways. This is borne out by the following figures for the port of Beira, which handles a very large proportion of the imports to the Rhodesias:—

	Years ended September 30		Increase or decrease
	1937 Harbour tons	1938 Harbour tons	
Landed	417,559	509,769	+92,210
Shipped	885,868	821,620	-64,248

Total ... 1,303,427 1,331,389 +27,962

The 1938 tonnage has also established a record for the port, which is operated by the railways on behalf of the port company. Passenger traffic, too, showed an increase during 1938, the number carried rising by 66,241 to 787,285 passengers, but of this increase native passengers accounted for 65,000, the number of first and second class passengers, almost entirely Europeans, showing only a slight increase.

Reduced Rates and Fares

A general reduction of rates and fares over the Beira & Rhodesia Railways came into operation on January 1, 1939, and the amount of revenue sacrificed is estimated on a year's working to be £239,500 by the Rhodesia Railways and £53,000 by the Beira Railway Company. Under the Railway Act, the Rhodesia Railways are allowed to accumulate funds in the reserve account and the rates stabi-

lisation account, but when the credit in the reserve account amounts to, or exceeds, twice the loan provision, *i.e.*, the amount to meet the interest on the debentures and sinking fund, the users of the railway are entitled to a reduction in rates and fares. This position was reached after the completion of the financial year ended September 30, 1938.

In general the reduction in rates and fares is effected by the removal of the surcharges, in most cases 10 per cent., which were imposed in 1932 and have been in operation ever since. First and second class fares lose the 10 per cent. surcharge, while third class and native fares lose the 1932 surcharge of 15 per cent., and in addition the individual native passenger scale is extended to travel over the Bulawayo—Mafeking section. The 1932 surcharges are abolished on parcels and excess luggage, goods, livestock, coal, and mineral traffic, with the exception of traffic at export rates, traffic from ports to the Congo, and certain re-forwarded traffic upon which the surcharges were not imposed. In addition, special reduced rates are introduced for cement, raw sugar, distribution traffic from Ndola southwards, and local manufactures from Umtali. One immediate result from the cheaper rates has been the reduction by one penny a gallon in the price of petrol in Southern Rhodesia.

New Works

One of the most important of the many new works authorised in recent months is the extensive scheme of improvements to the track layout and station at Salisbury, the capital of Southern Rhodesia. The existing approach to the platform and main yard from the direction of Bulawayo is on an awkward alignment and involves a level crossing over the Hatfield Road, which, apart from other traffic, carries the bulk of the road transport between the goods depot and the city. This level crossing will be eliminated and the main line will have an improved approach to the station, crossing Hatfield Road by an overbridge. Other track alterations will include the provision of a dead-end siding with a shelter and examination pit for the railcar working on the Salisbury—Shamva branch. The station facilities will be improved by the macadamising of the platforms and the widening of the main platform in front of the station building from 26 ft. to 40 ft., while roofing will be erected over the platform for a distance of 1,068 ft. In conjunction with the general remodelling scheme, a new engine coaling plant will be provided at the running shed.

At Beira there are many merchants' private sidings and bulk oil depots on each side of the main line, and, with the recent increases in traffic, the shunting over these sidings from the main line has been inconvenient. Service lines to these sidings, some 1½ miles in length from Beira station, are now being provided on both sides of

the main line to improve matters by isolating shunting movements from the main line.

Other new works include the provision of a new brick station building at Inyazura, a modern yard lighting system at Umtali, a brick goods office at Ndola, a number of additional quarters at various stations, and improvements and additions to the water supply at many points throughout the system.

Train Service Alterations

With the arrival of the *ms. Athlone Castle* at Cape Town on Thursday, January 5, the new 13½-day schedule between England and South Africa by the Union Castle Company's mailboats, with a Thursday arrival at the Cape, became the regular service. The boat train, the Rhodesia Express, now leaves Cape Town docks at 11.10 a.m. on Thursdays instead of Mondays, and reaches Bulawayo at 8.50 a.m. on Saturdays. From Bulawayo, owing to the need for connections for the fast train from Natal and Johannesburg arriving on Saturday afternoons, it is not possible to provide the fast trains to the east and the north which left about an hour after the boat train's old arrival on Wednesday mornings. These Wednesday trains have been withdrawn and the passenger trains from Bulawayo on Mondays, Wednesdays, and Saturdays to the north and east leave at 5.45 p.m. and 6 p.m. Those departing on Saturdays have been named the Northern Express and the Rhodesia Express respectively, giving arrivals at Victoria Falls at 6.30 a.m. Sundays and Ndola at 6.0 a.m. Mondays; and to the East at Salisbury at 7.30 a.m. Sundays, and at Beira at 7.0 a.m. Mondays. In conjunction with the main-line service, certain alterations and improvements have been made to branch line train services.

SOUTH AFRICA

Institute of Transport

Speaking at an informal luncheon of the Johannesburg and District Sub-Centre of the Institute of Transport, Mr. T. H. Watermeyer, Chairman of the South African Centre and General Manager of the South African Railways & Harbours, who was the guest of honour, pointed out that transport was now recognised as a definite profession with an appropriate status, and in supporting the institute, those present were paving the way for better recognition for themselves. He emphasised that it was not so much material gain one would expect from becoming a member of the institute, but obviously intellectual improvement must accrue where facilities were afforded for discussing and solving problems from the more advanced and scientific aspect. He was glad to see so many younger members present, and expressed the hope that they would continue to display an interest in the institute, thereby not only improving

themselves, but also helping to maintain transport on the high plane it now occupied. At the outset Mr. Watermeyer read an extract from a meeting of the Institute of Transport Council, in London, recording its appreciation of the work of the South African Centre and tendering its best wishes for the continued progress and development of the centre.

Mr. W. E. Turnbull, Chairman of the sub-centre, who formally introduced Mr. Watermeyer, said that under his guidance the South African Centre had progressed until today it had 480 members, a number that would, no doubt, be increased in the near future. He recalled that the General Manager was the first overseas member to obtain the distinction of being elected a Vice-President of the Council of the institute in London.

Special Service Battalion

Reporting on the scheme for training members of the Special Service Battalion for the catering service—referred to in THE RAILWAY GAZETTE of June 7, 1935, and January 29, 1937—the Controller and Auditor General states that the number of youths in training at March 31, 1938, was 160, and the number who, up to that date, had received employment was 509. Of these 274 were employed by the administration as stewards, 23 as chefs, and 115 in other capacities on the railways.

ARGENTINA

Exchange Concession for Railways

It was officially announced on January 12 by the Argentine Government that the foreign-owned railways will be permitted to obtain exchange during 1939 at the rate of \$16 to the pound, instead of the official rate now ruling of \$17. On the face of it, it is welcome news that the rate of exchange for the railways is not to be increased, but as the concession is coupled with the proviso that tariffs should not be augmented during the year, neither shall the amount of exchange allowed be in excess of that remitted during the year 1938—which, it will be remembered, was characterised by crop failures and consequent drops in tonnage hauled—there is really little cause for enthusiasm. On the contrary, it must be a matter of great disappointment to the managements that the general question of justice to the railways and their shareholders, by the introduction of measures to ensure their being able to obtain a fair margin of profit, appears likely to be shelved again for an indefinite period. To make this feasible, it is obvious that freights for commodities which are well able to stand an increase in transportation costs, due to enhanced values, must be raised; that salaries and wages, increased in times of plenty disproportionately to those ruling in other branches of trade and industry, must be adjusted, and that rules and

regulations now in force relating to the number of staff necessary to meet requirements at roadside stations, and elsewhere, must be altered to agree with common sense and not the demands of the railway unions. Obsolete provisos in the railway rule book must be renovated to suit altered conditions of working, and measures taken generally to avoid unnecessary expense.

No such change can be made, however, without Government intervention, and anything involving increase of freights and reduction of staff and wages, would undoubtedly reflect adversely on the popularity of the powers that be. After all, this exchange concession is likely to be resented only by importers and organisations other than the railways, mostly foreign, who have to remit money, and pay \$17 for their pounds. It means a loss for the Government exchequer, of course, but against this can be placed the advantage to the country of no increase in the railway rates, and it enables the Government to reject any charges to the effect that it has "done nothing" to relieve the distressing situation of the British-owned railways.

INDIA

Accidents

At about 12-40 hr. on January 25, an up light engine with a rest van attached, which had been detached from a material train, and a down light engine, belonging to a goods train, were involved in a head-on collision between Mohammadganj and Garhwa Road stations on the Barkakhana loop line of the East Indian Railway. Both the engines were badly damaged and the rest van was derailed and burnt, blocking the line. Seven members of the crews were killed on the spot and three were injured. Of the latter one subsequently died in hospital. It appears that there had been a telegraphic breakdown on the section and the engines were running on special permission to proceed without line clear. The line remained blocked till the afternoon of January 26 and in the meantime through communications were maintained by transshipment.

Since the deplorable deliberate train wrecking on the Grand Chord line of the East Indian Railway on January 12, there have already been three other cases of attempted sabotage of the same kind. On the Eastern Bengal Railway, No. 25 down metre gauge Calcutta passenger train ran into sleepers placed on the line near Rajshahi station, on the night of January 20; little damage was done to engine or track.

On January 22 the permanent way men noticed that four pairs of fishplates had been removed between Jamni and Gidhaus stations on the East Indian Railway, but were able to avert disaster to the approaching down Upper India express.

That same week there was a further attempt at train wrecking be-

tween Sihala and Chaklala stations on the North Western main line from Lahore to Rawalpindi. Six pairs of fishplates were removed but were discovered before any derailment occurred.

SPAIN

Barcelona Train Services Resumed

The Nationalist troops entered Barcelona at midday on January 26, followed by lorries laden with provisions and medical stores, and at five o'clock the Nationalist fleet entered the harbour. The first care of the military authorities was to restore the public services and by evening on the same day the electric light was available in most parts of the city. The electricity supply has been dependent, since the capture of the Tremp district, on the two local power stations in the city, which, although repeatedly bombed, have continued working intermittently. With the restoration of the normal supply of electric current, the Sarrià local railway resumed working, and a provisional service was initiated on the two underground systems on the 28th, as soon as the mattresses and blankets (and their owners) could be cleared off the platforms. The railways at present are continuing to work under military control, and in the course of time the companies will, presumably, recover their property.

UNITED STATES

Report on the Rutland Railroad

Mr. William Poland, the railway expert appointed last summer to study the Vermont railroad situation, in a report printed in a recent issue of the *Legislative Journal* at Montpelier, Vermont, estimated the present value of the Rutland Railroad* as \$3,000,000. The original cost of the line, apart from land and rights, was, the report states, \$27,918,322, or \$18,669,809, less depreciation. Dividends paid during the past 33 years totalled \$1,841,274, out of a total due of \$6,292,559. The general condition of the system was, Mr. Poland considered, good, and its maintenance cost of \$1,186.66 a mile was low compared with other roads. "In my judgment," he writes, "not one Rutland division could be dispensed with without dealing an almost fatal blow to the earnings of the whole system."

DENMARK

The Lyntog

While the average occupation of the seats in the ordinary carriages is 28.4 per cent., the average occupation of the Lyntog diesel-electric sets is 67 per cent., and during the summer much higher. Of the 1,500 million total passenger-kilometres on the State Railways, the eight Lyntog units account

* As recorded in our issue of September 23, 1938, this railway is in the hands of a receiver and its closure has been threatened.—Ed. R.G.

for about 200 millions. Receipts from the Lyntog services amount to Kr. 10 million a year.

Traffic Control

The line between Copenhagen and Roskilde is probably the most important in the country, carrying all the westgoing and southgoing traffic from Copenhagen. It has only two tracks, which are heavily occupied, about 180 trains daily—of all classes from Lyntog to slow goods trains—passing over them. The capacity of the line is [as announced in our issue of February 3.—Ed. R.G.] being improved by the construction of loop lines and introduction of traffic control, but the control office will not function constantly, and will be open only at times of peak traffic, as for instance, at Easter and Christmas, and during the holiday season.

Train Ferry Collision

On the night of January 15-16, two train ferries collided in the Great Belt, at a place where the ferries turn round outside Korsør harbour. As there was thick fog at the time, the ferries were manoeuvring slowly, and both were able to proceed to Korsør. One of them, the *Sjælland*, was holed above the water line, and, after preliminary repairs, was able to carry on until the reserve ferry could take over the service. The bows of the other vessel, the *Korsør* were damaged, with the result that the sleeping cars on board could not be run off until many hours later, when a bracket had been welded on to the ferry for the ferry bridges to rest on.

EIRE

Subsidy for Racing

The Government has agreed to provide a subsidy of £10,000 in order to develop racing, and the amount is to be allotted to the different meetings according to class, based on the number of meetings in the year. The special interest in this move to the railway companies—apart from the benefit that the racing industry brings to the railway generally (although greatly reduced in latter years by road competition)—is that the carriage is paid for the animals entered for the race which is subsidised—one in each of the scheduled meetings—whether conveyed by rail or road, with a limit for the latter of the same amount as would be charged by rail.

Changes at Dun Laoghaire

Despite announcements in the press from time to time regarding prospective changes at Dun Laoghaire (Kings-town) pier, no official announcement has been made and it is understood that no change has yet been decided upon. The fact that the contract for the conveyance of mails between Ireland and England will expire next year has doubtless stimulated interest in the possibility of alterations at Dun Laoghaire.

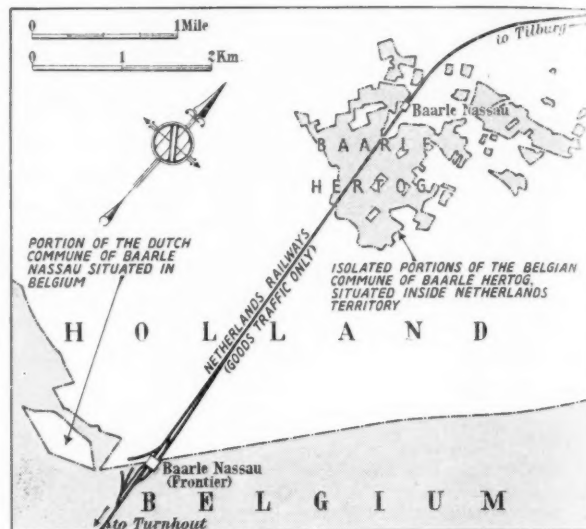
THE BELGO-DUTCH FRONTIER AT BAARLE-NASSAU

Peculiar example of territorial "islands"

ON page 1078 in THE RAILWAY GAZETTE for October 28, 1938, we gave particulars of the peculiar Belgo-German frontier arrangements created since the war in the Eupen district, resulting in isolated pieces of German territory being formed inside Belgium. Students of maps of the Netherlands and Belgium must often have noticed a similar situation near Baarle-Nassau, on the southern border of the Dutch province of North Brabant, where a portion of Belgian territory, Baarle-Hertog, is seen inside Holland, and is traversed by the railway from Tilburg to Turnhout. By the kindness of Mr. S. A. Reitsma, Editor of our contemporary, *Spoor- en Tramwegen*—from an article in which the particulars in our own article above mentioned were taken—we are able to reproduce the accompanying map of the locality, with the following details.

The railway is part of the Netherlands Railways but now carries goods traffic only. The main frontier line passes through the middle of the station known as Baarle-Nassau, Frontier (*grens*), the Baarle-Nassau station being some 5,000 m. (3 miles) northwards, adjacent to the isolated Belgian territory, the 1,520 inhabitants of which are subject to Belgian law; as a matter of convenience, however, Dutch time is observed. The total area of Baarle-Hertog is 7,480,000 sq. m. (1,870 acres). Just beyond the frontier and separated therefrom by a very small strip of Belgian territory is an isolated piece of Dutch territory belonging to Baarle-Nassau, while similar smaller pieces are found inside Baarle-Hertog itself.

The origin of this peculiar state of affairs is difficult to explain without historical details going back to very early times, but it may be said that Baarle-Nassau became Dutch through Prince William I of the Netherlands, who died in 1584 and to whose Barony of Breda it belonged,



Sketch map showing isolated portions of Belgium surrounded by Netherlands territory

and Baarle-Hertog came to form part of the earldom of Turnhout, under the sovereignty of the Spanish King. By the Peace of Münster in 1648 the two districts were assigned to the Northern and Southern Netherlands respectively. This situation ceased to exist during Napoleonic times, but was revived after the peace of 1839, which followed the separation between Belgium and Holland.

Early L.N.W.R. Track

IT will be recalled that the celebration by the L.M.S.R. last year of the London & Birmingham Railway centenary included an exhibition at Euston at which various early sections of rail were on view. The differences in practice thus shown to have prevailed at one period on the main line between London and Liverpool excited considerable interest among a number of visitors, and we were then asked various questions which these notes are designed to answer. In the main, the differences between one section and another prevailing a hundred years ago are accounted for by the fact that three separate railway administrations were concerned, namely, the London & Birmingham, the Grand Junction, and the Liverpool & Manchester.

A report of tests carried out in September, 1838 [recorded in *The Railway Magazine* (Herapath's) for February, 1839] showed that then the London & Birmingham Railway used 50-lb. fish-bellied wrought-iron rails supported every 3 ft. on stone sleeper blocks. The Grand Junction Railway was laid with 65-lb. rails supported every 4 ft., some on stone blocks, some on timber cross sleepers, and some (on Dutton viaduct) on longitudinal timbers. On the Liverpool & Manchester Railway at that time, 62-lb. parallel rails prevailed, and these were supported at 3-ft. intervals on stone blocks. In a volume by Zerah Colburn and Alexander L. Holley entitled "The Permanent Way and Coal-Burning Locomotive Boilers of

European Railways," published in New York in 1858, it was stated that "none of the 62-lb. rails laid in the Grand Junction line, in 1837, was taken up until after 1849. The 80-lb. rails then put down in place of the few removed, showed more wear after from 12 to 18 months' use, than the old rails after 12 years' wear. . . . Many of the rails put down on English lines in 1837 have worn 20 years. This has been the case on the L.N.W.R."

Meanwhile, on July 16, 1846, the Grand Junction (which in the previous year had absorbed the Liverpool & Manchester) and the London & Birmingham Railways had been amalgamated as the London & North Western Railway. At the half-yearly meeting held on February 18, 1848, a report was submitted stating that "the increased wear and tear of the rails, owing to the more rapid speed of the trains and to the greater weight of the engines, has been very carefully investigated by the company's officers, and the result has been to satisfy the board that as a matter of prudence it is desirable periodically to set aside a depreciation fund to meet the expense attending a gradual relaying of the whole line."

Rails had continued to be laid in joint chairs for many years, but Captain Mark Huish, in a paper to the Institution of Civil Engineers on April 27, 1852, said: "Improvements are continually introduced for the purpose of obtaining a sound continuous road. . . . Fishing the rails is now a popular, and, as far as partial experience

can determine, an efficient mode of strengthening a railway for the increased traffic it has to bear. . . Stone blocks are generally being rejected in favour of wooden sleepers. Heavier rails, with shorter bearings, are gradually being introduced, wherever relaying has become necessary." Considerable improvements in L.N.W.R. permanent way took place about 1853, and joint chairs were then discarded in favour of the suspended fishplated joint.

Colburn and Holley (in 1858) made quite a number of comments about British permanent way, of which the following indicate something of the then practice of the L.N.W.R.: "The best railways in the world—those which do the most business at the least cost—are the best ballasted. . . Economy alone dictates thorough ballasting. The great railway of the world—the London & North

Western—cost in 1855 but one fourth as much per mile run for maintenance of way as the great road of America, the New York Central. . . The fish joint . . . has been applied throughout the L.N.W.R. . . English rails are usually 18 ft. in length." A table in Colburn and Holley's volume shows for the L.N.W.R. an 85-lb. double-headed rail with a head $2\frac{1}{2}$ in. wide. We understand that the L.M.S.R. possesses the engineering records of the old L.N.W.R. from 1855 onwards, and that these indicate the standard use of 84-lb. double-headed wrought-iron rails during the period 1855 to 1862. The first steel rail on the L.N.W.R. was laid at Chalk Farm in 1862. From then until 1872 an 84-lb. double-headed steel rail was used, and in 1872 this section was abandoned in favour of an 84-lb. B.H. rail.

German Mountain Cableways

TOWARDS the end of 1937 the twelfth aerial cableway for passenger traffic in Austria—the Galzigbahn—was opened, making the total length nearly 19 miles. The incorporation of Austria into Germany last year naturally added to the strength of the Reich total these undertakings (which formed the subject of an article in our issue of September 23, 1938). The German Railway Information Bureau in London has now issued brief tourist details of the principal mountain cableways in Greater Germany, which we summarise in the tabular statement below.

The ordinary single and return fares are shown, and, unless otherwise indicated, provision is made for one class

only. In most cases children up to 10 years of age are carried at half rates.

Most of these cableways are necessarily isolated undertakings, built to facilitate the ascent of a famous mountain, but the Zugspitz provides an interesting exception. This mountain, exactly on the old Austro-German frontier, is served by cableways from both sides, and a round trip is thus possible. From Garmisch the arrangement is: Garmisch—Bayerische Zugspitzbahn—Schneefernerhaus—Summit—Schneefernerhaus—Connecting tunnel to Austrian Zugspitz Hotel—Tiroler Zugspitzbahn—Ehrwald—Garmisch. The prices of the round tour ticket are RM. 30.35 second class and RM. 26.17 third class.

Resort	Name of Cableway	Single Ascent	Single Descent	Return (Ascent and Descent)	Special Fares
St. Anton a. Arlberg ..	Galzigbahn	RM. 4.00	RM. 2.00	RM. 4.50*	Block ticket for 10 single journeys up or down, RM. 32; 7-day ticket, allowing unlimited journeys, RM. 40.
Kitzbühel	Hahnenkammbahn	4.00	—	5.50	Block ticket: 10 ascents, RM. 32; 20, RM. 60; 50, RM. 100.
Zell am See	Schmittenhöhebahn	3.00	2.50	5.00	Block ticket for 5 single journeys up or down, RM. 10. Motor coach, Zell-Schmittenhöhe station, RM. 0.30 single, RM. 0.50 return.
Innsbruck	Patscherkofel (from Igls) ..	4.30	3.00	5.00	Block ticket, 10 ascents, RM. 4.
Do.	Hungerburg	1.20	1.07	2.00	
Do.	Nordkettenbahn to Seegrube ..	4.67	3.33	6.67	Block ticket for 6 ascents and 6 descents, RM. 14.
	Do. to Hafelekarr	5.33	4.00	8.00	Block ticket for 4 ascents and 4 descents, RM. 16.
Payerbach-Reichenau ..	Raxbahn	3.35	2.65	5.80	Block ticket for 10 journeys up or down, RM. 25 (can be purchased only in advance).
Mariazell	Bürgeralpebahn	1.87	1.33	2.33	Block ticket for 10 journeys up or down, RM. 8.
Ebensee	Feuerkogelbahn	4.00	3.00	6.00	
Annheim (Ossiachersee nr. Villach)	Kanzelbahn	2.50	2.00	4.00	
Bad Reichenhall	Predigstuhlbahn	3.00	2.50	5.00	14-day ticket, allowing unlimited journeys, RM. 20.
Oberstdorf	Nebelhornbahn	4.50	2.50	6.00	Block ticket for 5 journeys up or down, RM. 15.
Brannenburg	Wendelsteinbahn	3.50	—	4.50	Second class tickets are also issued RM. 5.00 single, and RM. 6.50
Freiburg im Breisgau ..	Schauinslandbahn	2.40	1.40	3.20	
Garmisch-Partenkirchen	Wankbahn	3.00	2.50	5.00	Block ticket for 4 journeys up or down, RM. 8.
Do.	Kreuzeckbahn	3.00	2.50	5.00	Block ticket for 4 journeys up or down, RM. 8.
Do.	Bayerische Zugspitzbahn—Garmisch-Schneefernerhaus	13.00	13.00	20.00	On this section second class fares are also available, RM. 16 single and RM. 25 return. Sunday returns are RM. 20 second class and RM. 15 third class.
	Schneefernerhaus-Summit	2.00	—	3.00	
	Garmisch-Riffelriss or Grainau-Garmisch	4.00	4.00	—	These are skier tickets, issued when snow conditions are suitable. Book tickets for 6 journeys RM. 20
Ehrwald	Tiroler Zugspitzbahn	8.50	8.50	14.00	Block ticket for 3 journeys up or down, RM. 17; for 6 journeys, RM. 28.

* RM. 2.50 for pupils of St. Anton ski-ing school

EXTENSIVE RESIGNALLING ON THE SOUTHERN RAILWAY

Accompanying the spread of electrification numerous signalling layouts have been modified; colour-light signals and modern route indicating arrangements have been installed at many key points

RESIGNALLING on a scale more complete than anything yet seen in this country is accompanying the gradual extension of electrification of Southern Railway lines. Some of the more spectacular schemes, such as the signalling at Waterloo station and its approaches, have already been described in detail in THE RAILWAY GAZETTE, but the work now in progress goes a great deal farther than the treatment of terminal stations and large interlockings. Modernisation has been carried out just as thoroughly at smaller stations and intermediately, while the degree of standardisation achieved makes it possible to review comprehensively the main features of a settled resignalling policy, a policy of the greatest interest since it has been evolved to suit all the widely varying conditions of a railway system handling a considerable diversity of traffic.

It is of interest briefly to review the traffic developments that have dictated the modernisation of the signalling. The electrification of the London suburban lines of the former South Eastern & Chatham Railway was but a prelude, and the concurrent installation of power signalling at Holborn Viaduct, Blackfriars, Charing Cross, and Cannon Street, provided immensely valuable experience. Conversion of the electrified lines of the former L.B. & S.C.R. from the single-phase 6,600-volt a.c. system with overhead wires, to the 660-volt d.c. third rail system of the former L.S.W.R. (which had been standardised on the Southern Railway) was accompanied by further developments including resignalling at Tulse Hill, and a large power interlocking at London Bridge. Then came the electrification of the main line to Brighton.

Varying Traffic Conditions

The experience gained in these earlier schemes is shown in the work carried out during the past four or five years. The electrification of the Portsmouth Direct line called for varying degrees of resignalling. There is not a steady flow of traffic, such as passes over the Brighton main line. The express train service is based upon the periodic sailings from Portsmouth Harbour to the Isle of Wight, and provision has to be made for the working of express trains in two or more portions, running four or five minutes apart; after such a series there may be an interval of twenty minutes or so. The gradients over the greater part of the route are severe, and in order to preserve a uniformly close headway between successive trains intermediate colour-light signals have been provided on steep inclines where, even with electric traction, speed drops considerably below the average for the whole run. Much the same conditions exist in the Mid-Sussex, or Portsmouth No. 2 Scheme, on the awkwardly graded section between Dorking and Horsham.

The coastal termini, too, present quite a different problem in signalling from that of great stations in the London area, such as Waterloo and Cannon Street. During the summer, Portsmouth Harbour handles a volume of traffic that is quite heavy in relation to its limited platform accommodation, but conditions at Bognor Regis and Littlehampton are less exacting. The new signalling work in the latter cases has been occasioned largely on account of the lengthening of platforms to berth 12-car electric trains, and by the simplifying of track

layouts made possible by the elimination of light engine movements. At the larger intermediate junctions a variety of operating conditions may exist in one location. At Havant, for example, in addition to the junction of two main routes from London to Portsmouth, two busy level crossings are controlled, and the Hayling Island shuttle service is normally operated with no physical connection to the main line.

Standardised Signalling Practice

With the exception of Brighton Central station, where the traffic both in nature and volume resembles that of a London terminus, there is so far only one complete power scheme, with all-electric locking frame, outside the London area; this is at Woking, and it is designed similarly to those at Clapham Junction, West London Junction, and the approach lines to Waterloo. At all other locations a mechanical locking frame is used and electric power employed for the actuation of only those functions that cannot be satisfactorily controlled manually. The signals, for example, are generally mechanical upper quadrant semaphores, but at certain key points such as Havant, Horsham, Dorking, and Guildford, traffic considerations warranted the use of three-indication or four-indication signals, and here of course long-range day colour-light signals have been installed. But even in such cases as many of the shunt signals as possible are manually worked; these are of the coloured bar type, floodlighted at night at those interlockings where colour lights are used for the running signals. Those shunt signals which are situated some distance from the signal box, as for example at the south end of Horsham station, are operated by electric solenoids. At stations where semaphore signals are used throughout, the distants are worked by electric signal machines. Thus almost every interlocking is a judicious combination of power and mechanical signalling. The same applies to the operation of points; electric machines are used only for those layouts which are too far from the signal box for manual control.

At all interlockings, whether colour-light or semaphore signals are used, or whether the points are power or rod worked, a very complete scheme of track and indication locking is applied to all levers of the frame. All running lines are track circuited throughout the area controlled by the signal box, and by fitting the levers in the frame with electric lever locks and multi-contact circuit controllers driven off the lever tails all the additional protection of a full power interlocking is obtained. Electric point machines, colour-light signals, and electric signal machines are operated by means of these same circuit controllers, and as a necessary adjunct, points on running lines are equipped with electric detection.

Route Indicating

The use of splitting signals for junctions, in the case of both diverging lines and the approaches to terminal stations, can now be considered obsolete on the Southern Railway. In the area under consideration there are of course a number of instances where the existing semaphores have not yet been replaced, but for all new work route indicators are being installed. At terminal stations, where it is necessary to advise the motorman of the

platform at which he will arrive, route indicators of the multiple lamp, or theatre sign type, are being used, as at Waterloo. At main line junctions such as Havant, Horsham, Guildford, and Woking the very distinctive position-light junction indicators are to be found. These indicators have a sighting range very little inferior to that of the day colour-light signals and are of inestimable value at a location such as Havant, where non-stopping trains on the coast line may approach at high speed. In accordance with standard practice the directional sign is given only when a train is being diverted from the main route. At terminal stations where semaphore signals are used the route indicators giving the platform numbers are in some cases of the multiple lamp type, as at Eastbourne; but more generally indicators are used in which a black figure or letter appears in front of a white background.

The symbols are electrically selected. The normal aspect, when the signal is at danger, is a black disc; when the signal is pulled off and a particular route is selected the black disc falls away to a concealed position in the bottom of the case and the symbol required rises into the centre of the viewing ground. The black disc as a normal aspect is used to distinguish between normal and a failure of any of the symbols to rise. Indicators of this type were in service for many years at Waterloo; the largest had a capacity of no fewer than 16 routes, and when the new colour-light signalling was installed, these old indicators were found to be in such good condition that a comparatively small degree of overhaul was necessary to fit them for service elsewhere, though not necessarily with the same number of routes.

A modification of this type of indicator was used in the first installations of colour-light signals on the Southern Railway, at Charing Cross, and Cannon Street; in order to give an indication of comparable light-intensity the black figure was replaced by a stencil that was pulled into position on the axis of a powerful lens combination. The figure or letter shown was lunar-white, on a black ground. Both variations of this type of indicator are manufactured by the W. R. Sykes Interlocking Signal Co. Ltd.

Details of Typical Installations

The way in which these general principles are worked out in practice is best illustrated by consideration of actual installations. Havant provides what is probably the best example using colour-light signals, and the general layout can be appreciated from the accompanying plan. The home signals for the three main directions of approach, from Chichester, Guildford, and Portsmouth, are four aspect colour-light signals, surmounted by position light junction indicators. The distant signals for these same three main directions of approach are automatic colour-light repeaters, but on the coast line the signalling is complicated by the presence of Warblington halt, less than 1,300 yd. east of Havant station. The existing locking frame here is retained, and approach lights have been installed below the down home and down starting signals. These lights are exhibited only when the Warblington signals are off, and then their aspects lead up to signal KW 20 at Havant.

The down platform at Havant can be used for trains starting in the up direction, and signal KW 49/56/52 is fitted with a three-way multiple lamp route indicator, so that trains may be signalled on to the Direct line, the Coast line to Chichester and beyond, or the Hayling Island branch. The starting signals for the up through and up local lines have to be observed when approaching at speed, and so they are surmounted by position-light junction indicators. All signals relating to the Hayling Island

branch, with the exception of the starter from the down local platform previously referred to, are semaphores, though the home signal KW 69, which leads into colour-light territory has an approach light fitted below the arm. All shunt signals relating to the main lines are of the coloured bar type, floodlighted at night; they are manually worked, with the exception of three at the west end of the station, KW 60, KW 61, and KW 66, which lie over 600 yards from the signal box. At the same location are to be found the only power worked points, namely the crossovers 26, 62, and 65.

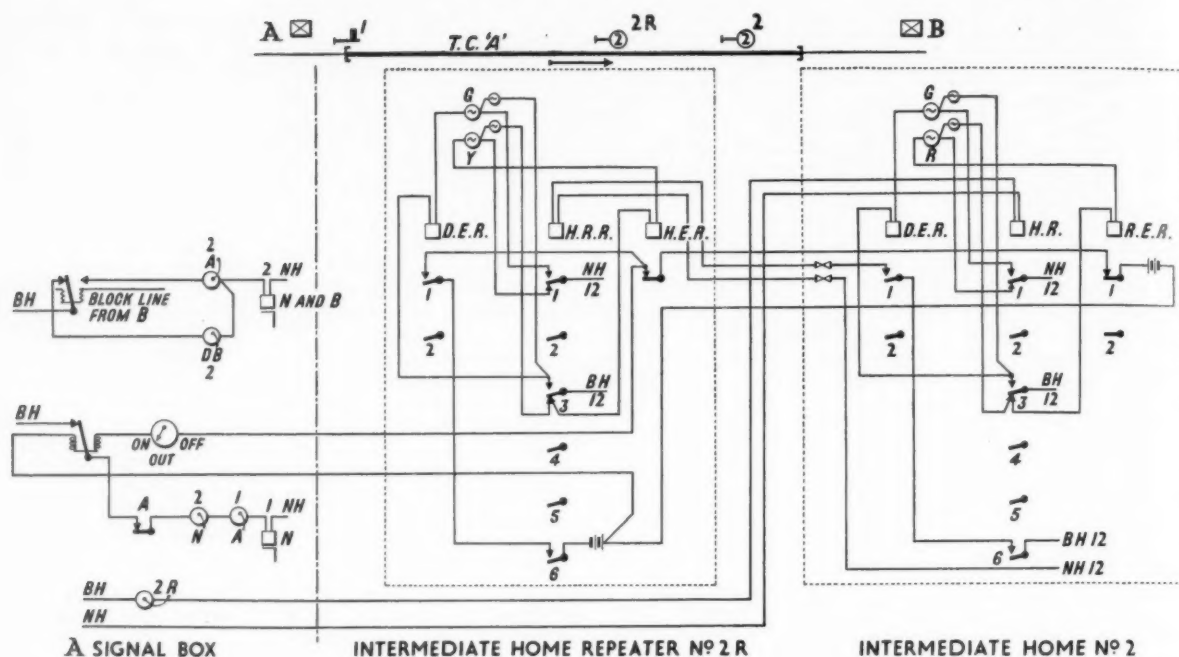
In many respects the installation may be considered the most comprehensive on the Southern Railway. In addition to the main features just enumerated, the level crossing is controlled from the signal box. On both the main line and the Hayling Island branch the gates are manually worked, by means of a bevel gear, and the wickets on the Hayling Island branch are directly operated from the locking frame. Finally there is a trailing crossover 406 yd. away on the Direct line, operated by a ground frame electrically released from the Havant locking frame.

Installations with Mechanical Signals

Prior to the extensive works carried out in connection with the electrification of the two routes to Portsmouth, a number of important stations had been equipped with so-called electro-mechanical signalling. Wire worked semaphore signals, and mechanically worked points are used, but such layouts are track circuited and electrical detection is provided on all points on running lines. Schemes of this kind have very satisfactorily met the requirements at Tonbridge, Hawkesbury Street Junction, Dover, Southampton Central, Templecombe and elsewhere. Bognor Regis provides one of the latest examples, and the general layout of the signalling can be appreciated from the accompanying plan.

The incoming home signal, No. 63, is provided with a four-way route indicator; this is of the selected symbol type and indicates that the route is set for either No. 1, 2, 3 or 4 platform. Below the main signal there is a calling-on arm, marked with a letter C, No. 62. At night no light is shown from the spectacle on this arm when the arm is in the danger position; a reduced size green is shown in the clear position. Similarly a reduced-size red aspect is exhibited by the signal 57, which reads into the goods yard, or to the locomotive turntable road. Signal No. 14, the Bersted Intermediate up home, which is a two-aspect day colour-light, acts as an extra advanced starter; a two-aspect colour-light repeater to this signal is provided below the Bognor advanced starter No. 13. It will be noted that the facing points 21, 32, and 38, which are close to the platform starting signals, are mechanically detected. The shunt signals, though of the coloured bar type, are not floodlighted at night but exhibit reduced size red and green lights. This practice is in accordance with other locations where the main running signals are semaphores. From our observations the new signalling and track layout at Bognor Regis seems capable of dealing, most satisfactorily, with the heaviest August holiday traffic likely to be experienced for many years to come.

In a large number of these electro-mechanical layouts the existing locking frames have been adapted for the purpose. On the various sections of the Southern Railway a diversity of types existed, and no little ingenuity has been shown in the fitting of the numerous electric lever locks and circuit controllers necessary for the work. One of the most interesting conversions is to be seen at Portsmouth Harbour. The density of traffic during the summer months suggested an all-electric interlocking; construction of a new signal box alongside the old would



Typical wiring of intermediate colour-light signals

not however have been an easy matter, as the line is carried on arches, and so the old Stevens frame has been adapted to the work. Apart from the fact that mechanical interlocking between levers is retained, the installation conforms to the most up-to-date power signalling practice standard on the Southern Railway, using colour-light signals, multiple lamp route indicators, solenoid operated shunt signals and electric point machines throughout. As with all colour-light signals worked from mechanical locking frames all aspects are repeated in the cabin by means of miniature illuminated indicators, mounted on a shelf behind the levers. Among the larger installations where existing locking frames have been converted to the electro-mechanical system may be mentioned Portsmouth Yard, Fratton, Haslemere, Chichester, and Littlehampton.

Intermediate Section Signalling

Many of the busiest Southern routes include stretches of severe grading. In such instances the slower travelling of trains on the ascending road automatically increases the minimum headway, and with manual block signalling, or lock and block, no remedy existed save that of installing intermediate block posts, although the extra signals are needed on one road only. An interesting solution to this problem has been found. Halfway between two block posts there is installed a two-aspect colour-light stop signal. Although in practice this signal constitutes an intermediate block post (and it is accordingly preceded by a distant signal) it is actually an advanced starter for the box in rear. The accompanying diagram illustrates the working out of this principle, which was first applied to a number of locations on the up road between Winchester and Worting Junction (Western Section). Hereabouts the gradient is 1 in 252 for 16 miles, and the time taken by heavy trains to clear the block sections was a handicap at periods of pressure.

Referring to the typical diagram, a track circuit is installed from the starter at "A" Box, No. 1, to a point 200 yd. beyond the intermediate colour-light signal, No. 2. Sykes lock-and-block working is in force, and if a train

is offered to the signalman at "A" before a release has been obtained from the box ahead, "B," the man at "A" can lower his starter provided that the track circuit is unoccupied and the intermediate signal, No. 2, has been restored to danger. The signal lamp is also proved at danger. The conditions will be apparent from a study of the wiring diagram. When the block release is obtained from "B" a feed is obtained through an "A" contact band on the circuit controller on lever No. 2 to free the front lock on that lever. As there is no track circuit between the overlap point of signal No. 2 and box "B," this intermediate signal has to be replaced to danger by the lever, the signalman waiting until the track circuit repeater changes from occupied to clear.

A neat arrangement is obtained by mounting the tubular steel signal mast on the top of the location case containing all the apparatus. The cases themselves are something of a novelty. In order to reduce to a very minimum the work of installation the apparatus cases were despatched from the makers' works completely fitted up, with all internal wiring done. This was not a difficult matter with the rectifiers, fuses, and resistances, as such items could be bolted or screwed down; but the relays were also included, and were secured to the shelves on which they stand by stout rubber binding. The foundations had been prepared previously and the line wires run; all that was necessary on the site was to erect the signal, connect up to the line wires, and put in the small amount of wiring between the signal and the apparatus case. The complete wiring of the apparatus cases, shown in a separate diagram, makes clear the large amount of installation wiring obviated by this method.

A notable case where such intermediate section signalling has greatly eased an acute traffic problem is on the Sole Street bank, where the Eastern Section main line from Ramsgate to London climbs westwards out of the Medway Valley, and the gradient is 1 in 100 for 5 miles. With the heavy trains from the Kent Coast resorts speed is rarely more than 30 m.p.h., and at times of pressure delays often occurred because of the long time taken to

clear the block sections. On the two routes to Portsmouth, intermediate section signalling is to be found on the heavy gradients leading to the summit at Haslemere on the Direct line, and also, on the former L.B. & S.C.R. route, between Dorking and Horsham, where there are appreciable lengths graded between 1 in 90 and 1 in 100.

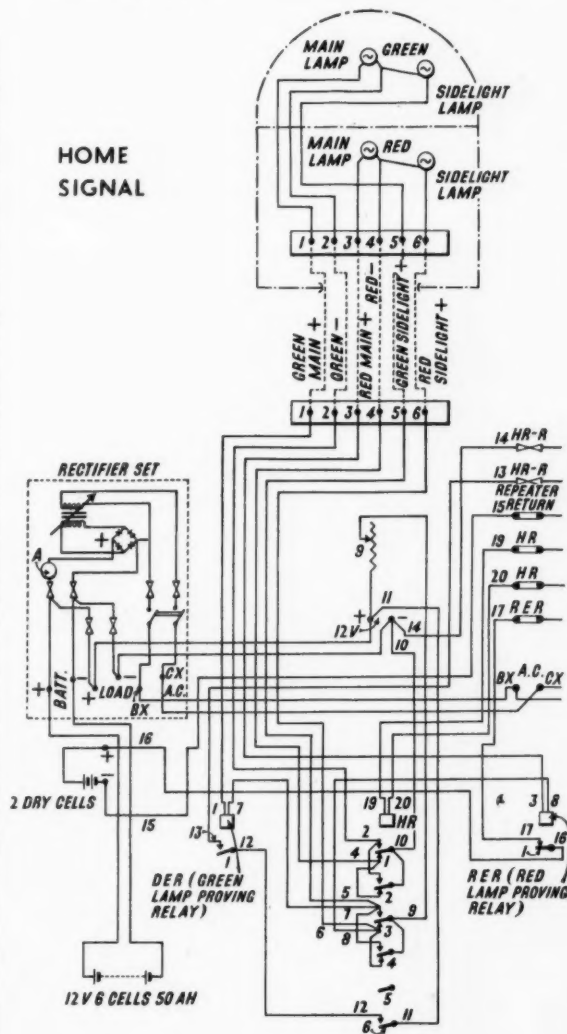
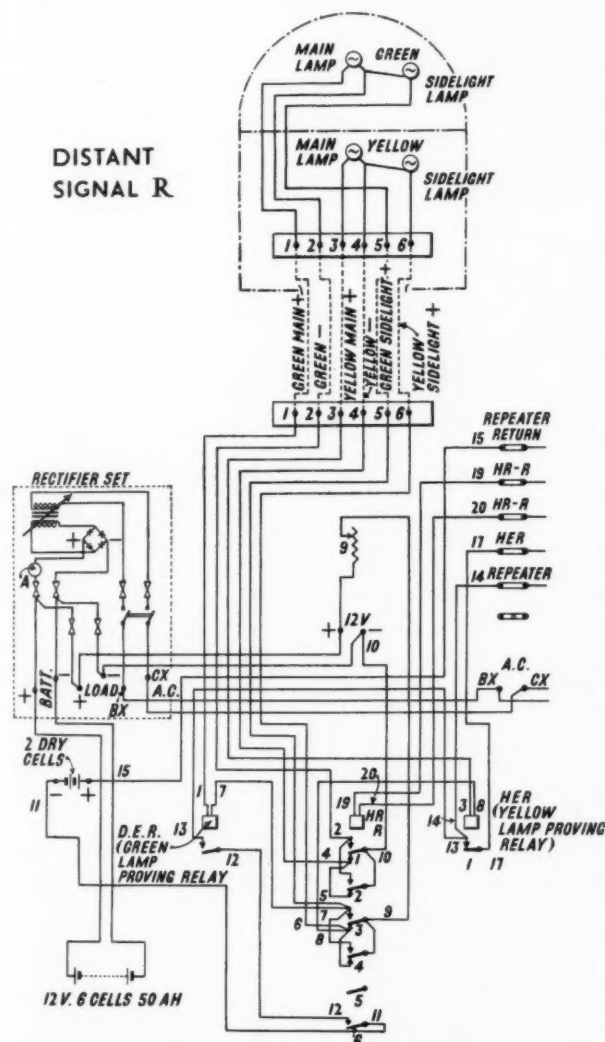
Work Now in Progress

Work has begun on some further schemes, again in conjunction with the extension of the electrified system. In connection with the electrification of the Reading line an electro-mechanical installation has been prepared for Ascot, and in anticipation of extra pressure in the London area continuous colour-light signalling is being installed between Whitton Junction and North Sheen; here the resignalling is, we understand, to be carried out on the same principles as that recently completed in the Portsmouth No. 2 Scheme. At the same time that all this diverse signalling activity is in progress it must be remembered that the last of the great

London termini, Victoria, is also being dealt with, generally on the same lines as Waterloo.

Standard Apparatus

Concurrently with the standardisation of the system of signalling the apparatus also has been standardised to a large extent. With the exception of the insulated rail joints which are of rolled section and supplied by the W. R. Sykes Interlocking Signal Co. Ltd., and the selected symbol type route indicators previously mentioned, practically all the material used in the extension works referred to is manufactured by the Westinghouse Brake & Signal Co. Ltd. A great deal of the apparatus is of that firm's standard pattern, but a considerable number of items, notably the position-light junction indicator and the system of shop-wired apparatus cases, have been developed specially to suit the requirements of the Southern Railway. Alternating current track circuits are installed on all sections, except where no electric traction is at present contemplated (as in such Eastern Section layouts as Tonbridge, Dover, and Sandwich); these a.c. track circuits are condenser fed and work in conjunction with the latest Westinghouse type of resonated impedance bonds. The



Circuit diagrams for shop-wired apparatus cases used for intermediate colour-light signals. The signals are mounted on the apparatus cases



New electro-mechanically equipped signal box at Arundel

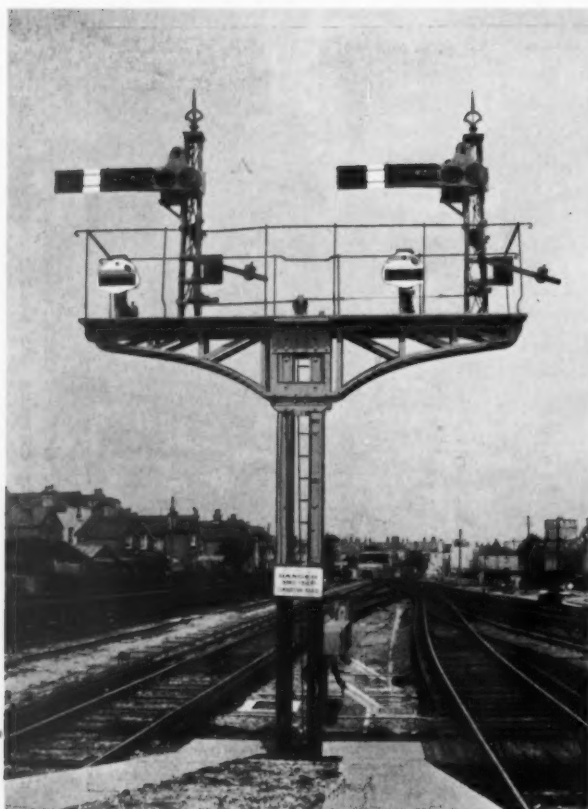
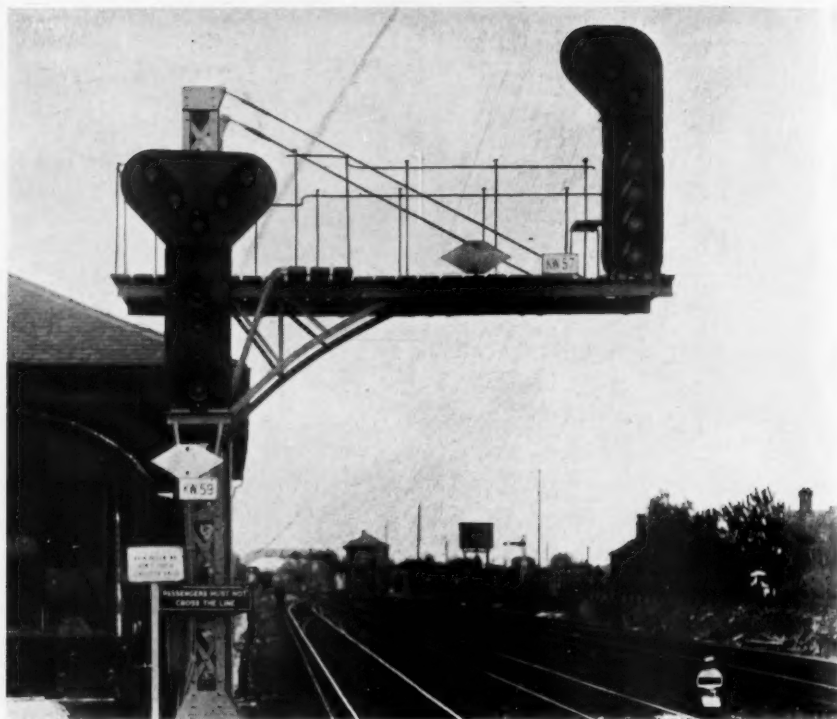


Interior of Havant box, showing new electro-mechanical locking frame. On the quadrant is a special bracket fitting carrying the electric lever locks situated immediately behind the levers



New Bognor Regis signal box, showing up advanced starter (semaphore) with two-aspect colour-light signal below. Note the ground shunt signal, impedance bond layout, and mechanically detected trailing points

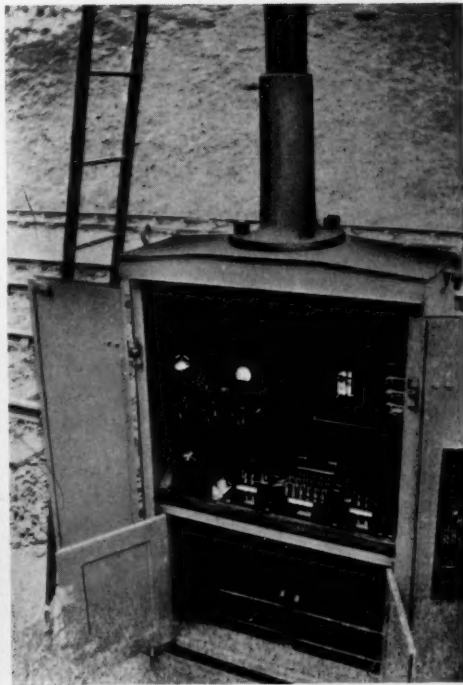
Right : Up starting signals at Havant with position-light junction indicators



*Left : Bognor Regis up starting signals Nos. 8 and 9. Note main portion of signal post made from four old rails.
Right : Bognor Regis down home signal No. 63 with selected symbol type route indicator beneath*

colour-light signals all have separate lenses for each indication, and all are provided with sidelights; this latter is a most important feature where so much of the traffic consists of multiple-unit electric trains. All new mechanical locking frames are of the Westinghouse 1924 "A2" type; in the electro-mechanical installations fully 75 per cent. of the levers are fitted with electric locks, circuit controllers, or both, and these appliances are mounted on a pair of channels running from end to end of the frame. The locks and circuit controllers are of the Westinghouse "D4" type, with vernier adjustment for the contact bands. For power point layouts the Westinghouse Style "M3" combined point and lock machine is used, operating usually on 90/110 volts d.c., but with a.c. for indication circuits. The electric point detector is a development of the Style "D" detector brought out upwards of 30 years ago by the then McKenzie, Holland and Westinghouse Power Signal Co. Ltd., and incorporates the rocker-arm method of detection permitting of fine adjustment and very quick breaking contacts.

The whole of the interesting and important works described in this article were designed and installed by the staff of the Southern Railway Company's Chief Engineer, Mr. George Ellson.



Left: Intermediate two-aspect colour-light signal near Winchester, with black and white striped telephone box. Right: Shop-wired apparatus case for intermediate signals with signal post mounted on top, near Winchester

IMPROVED ELECTRIC TAIL LAMP

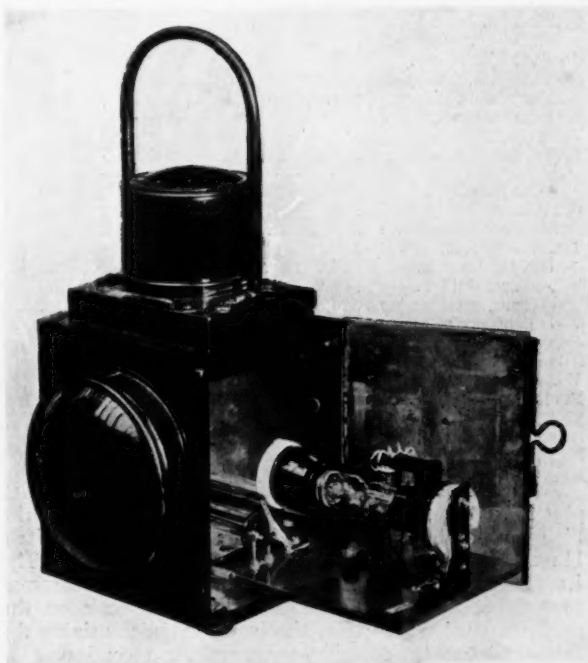
A new design intended to give a "scintillating" light and so render the tail light distinctive

IN consequence of certain accidents considerable attention has been directed during the last year or two to the question of improving the visibility of tail lights and rendering them immediately recognisable. The ordinary oil lamp generally used on steam trains has been criticised for its admittedly poor visibility at times, and because it bears, or may bear under some conditions, a similarity to certain other lights.

The accompanying illustration shows a new design of electric lamp designed to produce a distinctive "scintillating" light. Its principal feature is the provision of maximum visibility in a scintillating beam (scintillations of the required periodicity being produced by a special magnetic interrupter in the lamp circuits), and its positive distinctiveness from all other existing lights on the line such as signal lights. An arrangement is incorporated to switch over to a battery circuit and lamp in case of failure where the lamp is used across a mains (traction or other) supply. This is not necessary when the current is taken from the train battery.

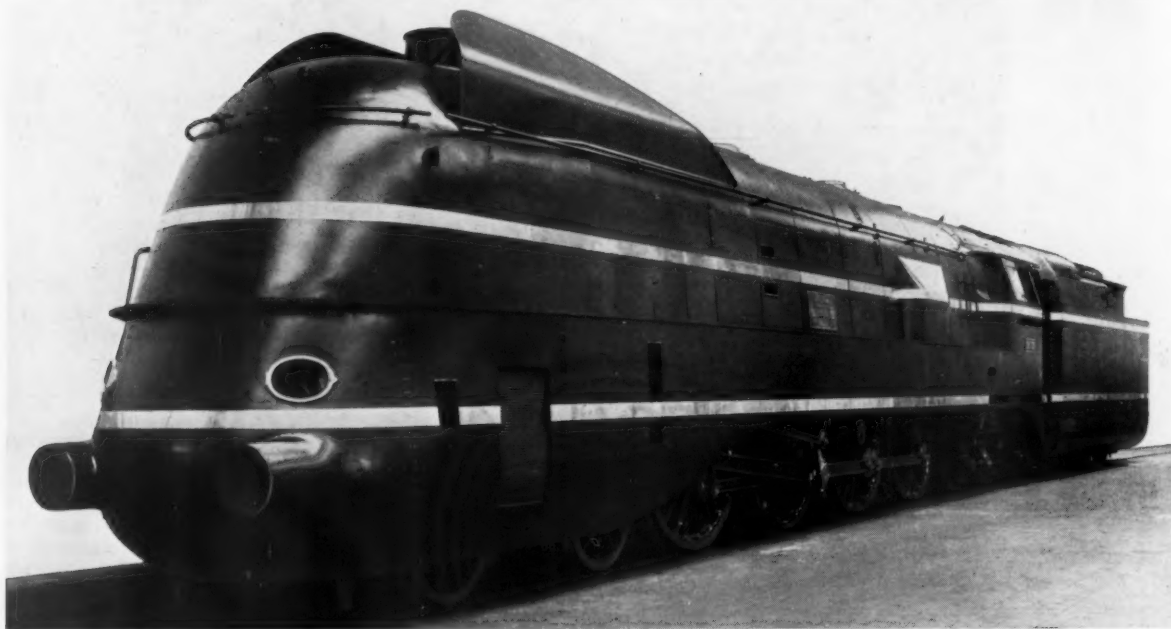
Two 15-watt bulbs are wired in parallel to guard against filament failure. The whole of the electrical apparatus is mounted on a panel fitted with plugs engaging with sockets in the back of the lamps. This panel can be drawn out clear of the lamp, free from loose wires. The usual water-tight cable socket is provided on the outside of the lamp, and, if required, a single-pole switch. Where tail lamps or head lights are built into the coachwork of a car, the scintillating mechanism can be supplied as a separate unit for connecting in the lamp circuit.

Such a distinctive lamp would, it is considered, be useful in many places, not only as a tail signal, but for traffic signalling, level crossing gates, buffer stops, bollard posts, and for dockyard or shipping purposes. The design is protected by patent, and further particulars of it can be obtained from C. W. Denny, 3a, Grosvenor Road, Chiswick, London, W.4.



NEW GERMAN EIGHT-COUPLED EXPRESS LOCOMOTIVES

A three-cylinder simple type with streamlining for the German State Railway, claimed to be the largest and most powerful passenger locomotive in Europe



THE first of two streamlined express locomotives under construction at the works of Fried. Krupp A.-G., of Essen, to the order of the German State Railway, has recently been completed. It is of the 4-8-4 type with ten-wheeled tender, and is stated by the builder to be the largest and most powerful steam locomotive in service in Europe. The following are main particulars:—

Cylinders (3), dia.	520 mm.	20½ in.
stroke	720 mm.	28½ in.
Coupled wheels, dia.	2,000 mm.	6 ft. 6¾ in.
Bogie wheels, dia.	1,000 mm.	3 ft. 3¾ in.
Tender wheels, dia.	1,000 mm.	3 ft. 3¾ in.
Evaporative heating surface, total	289·0 sq. m.	3,109·6 sq. ft.
Superheating surface	132·5 sq. m.	1,425·7 sq. ft.
Combined total	421·5 sq. m.	4,535·3 sq. ft.
Grate area	5·04 sq. m.	54·2 sq. ft.
Boiler working pressure	20 at.	284 lb. per sq. in.
Tractive effort (85 per cent. b.p.)	24,673 kg.	54,830 lb.
Wheelbase, rigid	6,750 mm.	22 ft. 1½ in.
Wheelbase, total engine	14,525 mm.	47 ft. 7½ in.
Weight of engine in working order	143·5 metric tons	141½ tons
Adhesion weight	80 metric tons	78½ tons
Water capacity of tender	38 cu. m.	8,360 gal.
Fuel capacity of tender	10 metric tons	9½ tons
Weight of tender in working order	82 metric tons	80½ tons
Maximum speed	140 km.p.h.	87 m.p.h.

Low-molybdenum alloy steel is used for the boiler plates, as this material retains maximum strength at the high working temperatures. The firebox is of Krupp Izett II steel, a material that is highly resistant to ageing. The frame side plates are 100 mm. (3½ in.) thick and narrowed towards each end. The three cylinders operate on the single-expansion principle, the inside cylinder driving the first, and the two outside cylinders the second pair of

coupled wheels, with a separate valve gear for each cylinder. Inside frames are used for the leading bogie, and outside frames for the trailing bogie, the latter in order to leave maximum space for the ashpan. The arrangement of the spring compensating beams allows the axle loading to be reduced from 20 to 18 metric tons (19 tons 13 cwt. to 17 tons 14 cwt.).

In consideration of the high maximum speed provided for, *i.e.*, 140 km.p.h. (87 m.p.h.), special attention has been paid to the brake equipment of the new locomotives. An exhaust steam feedwater heater is built crosswise into the smokebox. The standard Reichsbahn inductive automatic train control gear is fitted to the locomotives.

The ten-wheeled tender is of the latest standard type of the German State Railway having a four-wheeled bogie and three independent axles. The frames of the tender are of welded construction. A coal-pusher is provided. The locomotives, one of which is illustrated, are designed for hauling express passenger trains of 650 tons loading behind the tender at speeds of 120 km.p.h. (74·6 m.p.h.) on the level and 60 km.p.h. (37·3 m.p.h.) on gradients of 1 in 100. Their use will effect considerable reductions in the journey times of the D and FD express trains in heavy main-line service. (*See editorial note on page 290.*)

L.N.E.R. FREIGHT TRAINS.—The fall in freight traffic on the L.N.E.R. during the past year has meant that there has been less occupation of the line, with the result that the average rate of movement of freight traffic has been improved. Freight train-miles per train-hour rose from 8·85 to 9·26, an improvement of nearly 5 per cent. It is satisfactory to find that the freight shunting miles per 100 train-miles have again fallen. Since 1927 this figure has dropped from 77·48 to 65·63, a decrease of 15 per cent.

RAILWAY NEWS SECTION

PERSONAL

The directors of the London & North Eastern Railway at their meeting on February 17 appointed Mr. H. H. Mauldin, Superintendent (Eastern Section), Southern Area, to be Divisional General Manager, Southern Area, in succession to Mr. C. H. Newton, who, as already announced, will become Chief General Manager of the company on March 4.

INDIAN RAILWAY STAFF CHANGES

Mr. K. B. Lal Mathur and Mr. L. P. Misra have been confirmed as Deputy Chief Engineers, E.I.R.

Mr. C. E. Hall has been confirmed as Deputy Chief Accounts Officer, G.I.P.R.

Mr. L. Wilson, General Manager, G.I.P.R., who is on sick leave, has been officially granted 10 months' leave as from August 29 last.

Mr. J. C. O'Neill has been appointed to officiate as Divisional Superintendent (Senior), N.W.R., as from December 17 last.

Mr. W. A. Anderson has been appointed to officiate as Divisional Superintendent (Junior), N.W.R., as from December 15 last.

Mr. A. F. Harvey, F. C. H., General Manager, E.B.R., has been granted leave preparatory to retirement as from the end of January. Mr. Harvey's portrait and biography were published in our issue of December 23 last.

Mr. L. P. Misra, at present officiating as a member of the Federal Public Services Commission, and substantively an officer in the Engineering Department of the E.I.R., has been appointed to officiate for Mr. Harvey, on relief of his duties in connection with the commission. Pending the arrival of Mr. Misra, Mr. H. G. Salmond, Deputy General Manager, will officiate.

Mr. O. G. Edwards, Controller of Stores, G.I.P.R., on return from leave resumed his duties on October 21.

Mr. J. A. Bell, General Manager, E.I.R., has been granted leave out of India as from March.

Mr. R. E. Marriott, Chief Engineer, E.I.R., has been appointed to officiate as General Manager during Mr. Bell's absence on leave.

Mr. E. R. Casement, Senior Government Inspector of Railways, Circle No. 2, has been appointed to officiate as Chief Engineer, E.I.R., in place of Mr. Marriott.

Dr. R. J. Dyson, Chief Medical Officer, M. & S.M.R., returned from leave and resumed his duties on January 21.

Mr. H. H. Mauldin, who, as announced in the previous column, has been appointed Divisional General Manager, Southern Area, L.N.E.R., as from March 4 in succession to Mr. C. H. Newton, entered the service of the former Great Eastern Railway as a junior clerk in the Superintendent of the Line's Department. After obtaining wide experience in various offices he was attached to the staff of the



Elliott

[d. Fry

Mr. H. H. Mauldin

Appointed Divisional General Manager, Southern Area, L.N.E.R.

Superintendent in the Special Traffic Section. In 1915 he enlisted as a sapper in the Royal Engineers (Railway Troops) and served for a considerable period in the Railway Operating Division in forward areas in France, obtaining a commission. After the armistice he was transferred to the R.E. Stores Directorate as Traffic Officer, and was subsequently appointed Assistant Director with the rank of Lt.-Colonel. On his return to the Great Eastern Railway he was attached to the General Manager's department for duties particularly regarding traffic questions. In September, 1921, Mr. F. V. Russell, then Superintendent of Operation, G.E.R., was allocated for special duties attached to the General Manager's department, and went to the United

States and Canada to study railway operation and practice. During his absence Mr. Mauldin was appointed to supervise the working of the Operating Department on behalf of the General Manager with the title of Acting Superintendent of Operation, G.E.R. On the formation of the L.N.E.R. at grouping he became Chief Assistant Superintendent, Southern Area, under Mr. W. Clow, and dealt more particularly with the working of the section comprising the lines of the former Great Eastern Railway. With the retirement of Mr. Clow on September 30, 1927, the directors of the L.N.E.R. decided to make a change in the organisation of the Superintendent's Department of the Southern Area of the system. For traffic operating purposes it was divided into two sections, namely, the Western Section, comprising approximately the former Great Northern and Great Central Railway lines, and the Eastern Section, corresponding broadly to the former Great Eastern Railway. At that time Mr. V. M. Barrington Ward was appointed Superintendent of the Western Section, and Mr. H. H. Mauldin Superintendent of the Eastern Section; both these officers were responsible to the Divisional General Manager, Southern Area. Mr. Mauldin has continued to occupy the position of Superintendent, Eastern Section, Southern Area, London & North Eastern Railway, from October 1, 1927, until his present appointment. He has always taken a keen interest in matters affecting staff welfare and is Chairman of the Athletic Association and President of the G.E.R. Old Comrades' Association. He is also a Vice-President of the Institute of Transport and was Chairman of the Operating Superintendents' Conference, Railway Clearing House, for the year 1933. In December, 1934, it was announced that the King of Denmark had conferred upon Mr. Mauldin the Order of knighthood of Danneborg; and *The London Gazette* of January 3, 1936, recorded that the King had been pleased to sanction his appointment as an Officer of the Venerable Order of the Hospital of St. John of Jerusalem.

Mr. J. M. R. Fairbairn, whose retirement from the post of Chief Engineer, Canadian Pacific Railway, was recorded in our issue of January 13, joined that company as Assistant Engineer, Montreal Division Engineer's Office, in 1901. In the next year he was transferred to Ottawa as Resident Engineer, and went to the Chief Engineer's office,

Montreal, as Assistant Engineer in 1904. Later, Mr. Fairbairn served as Division Engineer in the Quebec district, at Toronto, and at Montreal, before being appointed Principal Assistant Engineer, Montreal, in 1908. In 1910 he was appointed Engineer, Maintenance of Way, Montreal; became Assistant Chief Engineer, Montreal, in 1911; and was appointed Chief Engineer in 1918.

Mr. John E. Armstrong, whose appointment to succeed Mr. J. M. R. Fairbairn as Chief Engineer of the Canadian Pacific Railway, was recorded in our issue of January 13, was born in the United States in 1886, and took his degree at Cornell University in 1908. His early experience was gained in the Mechanical and Engineering Departments of the Pennsylvania Railroad, and he was appointed Assistant Engineer in the Chief Engineer's Office on the C.P.R. in 1912. After further Canadian experience he rose to be Assistant Chief Engineer in 1928, the position from which he has now been promoted to be head of the department. He is a Past-President of the American Railway Engineering Association.

SIR THOMAS WILLIAMS

Sir Thomas Williams is among the directors of the L.M.S.R. retiring by rotation, and on this occasion is not offering himself for re-election.

Sir Thomas Williams was born at Newport, Monmouthshire, and entered the service of the former London & North Western Railway Company in 1876. After holding positions in the South and Central Wales districts, he was appointed District Goods Manager



Sir Thomas Williams

General Manager, L.N.W.R., 1919-20.
Director, L.N.W.R., and L.M.S.R., 1921-39

at Warrington in 1902, and in 1907 was transferred to London as Goods Superintendent at Broad Street. He served for four years in this capacity and in 1911 was appointed an Assistant to the General Manager with headquarters at Euston where his work was concerned mainly with labour questions

and affairs relating to the working of the Conciliation Boards. He became Chief Goods Manager on January 1, 1914, and was Chairman of the Goods Managers' Executive Committee, and a member of the Executive Committee for the Government Control of Canals during the war. In February, 1917, when the late Sir Guy Calthrop was appointed Coal Controller, he became Acting General Manager, and on the death of the former he was, in March, 1919, appointed General Manager. He was also appointed Lt.-Colonel, Railway Staff Corps, R.E. In August, 1919 he received the honour of knighthood. During the war he became a member of the Railway Executive Committee, the Canal Control Committee, and the Port and Transit Committee, and continued as a member of the Railway Advisory Committee of the Ministry of Transport. He was chosen by the Railway Executive Committee to give evidence in 1918 before the Select Committee of Transport.

Sir Thomas retired from the General Managership of the London & North Western Railway at the end of 1920, and was then elected to a seat on the board of directors of the L.N.W.R. Since grouping he has occupied a seat on the board of the L.M.S.R. until the present time. Sir Thomas

Williams has one son, Mr. W. Howard-Williams, Chairman of the Central Argentine Railway, who for many years was associated with the old London & North Western Railway. He also has one grandson qualified in the Law and now on the staff of Solicitors at Euston.



[Wykeham]

Mr. L. C. Hawkins

Appointed Chief Accountant,
London Transport

[Studios]



[Wykeham]

Mr. F. A. A. Menzler

Appointed Chief Financial Officer,
London Transport

[Studios]



Mr. W. F. Spree

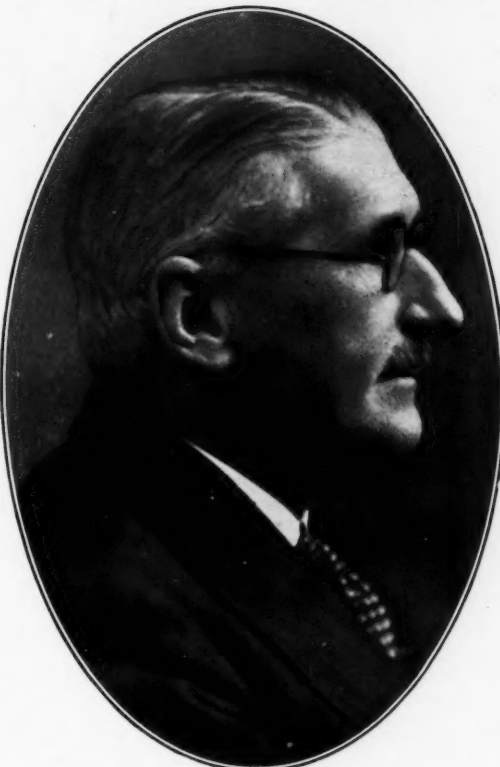
Appointed General Agent for Germany, &c.,
Southern Railway

Mr. L. C. Hawkins, who as recorded in our issue of February 3 has been appointed Chief Accountant of the London Passenger Transport Board, was born in 1897. He served in France with the 37th/10th Royal Fusiliers, and in 1917 he joined the audit staff of Messrs. Deloitte, Plender, Griffiths & Company. After qualifying with honours as an Incorporated Accountant, he was admitted to membership of the society in 1926. In 1929 Mr. Hawkins entered the Comptroller and Accountant's Department of the Underground companies and two years later he was appointed Assistant Statistical Officer. During 1930 and 1931 he was engaged in negotiations leading to the agreement on the consideration to be paid for the transfer of the undertakings in the Underground group to the London Passenger Transport Board. On the formation of the board in 1933, Mr. Hawkins was appointed Assistant to the Comptroller and Accountant of the board, the position he has now vacated. During the last five years Mr. Hawkins has been occupied with accounting problems arising from the transfer of the constituent undertakings and with the proceedings before the Arbitration Tribunal regarding the consideration to be paid for acquired bus and coach undertakings. He was appointed a member of the Accounts Advisory Committee, set up in April, 1934, to deal with the operation of the pooling scheme between the board and the main-line railway companies.

Mr. F. A. A. Menzler, who as recorded on February 3 has been appointed Chief Financial Officer, London Passenger Transport Board, was educated at St. Marylebone Grammar School and Strand School, King's College. In 1907 he entered the Finance Department of the Ecclesiastical Commission, and while in that office graduated in science at London University and studied for the examination of the Institute of Actuaries. He saw war service in France, first as a sergeant in a 9-2 battery, and later, after gaining a Commission, in the Royal Engineers. After the war, in which he was awarded the Croix de Guerre Belge, Mr. Menzler transferred to the Government Actuary's Department. In October, 1929, he was appointed to a position in the Chairman's office of the Underground companies. A year later he was given the title of Actuary, which he retained when the board was constituted in 1933. It is from this office that he goes to take up his new appointment. Mr. Menzler, a Bachelor of Science, is also a Fellow of the Institute of Actuaries. At present a member of the council of the institute and its senior Joint Honorary Secretary, he has served as

member and Chairman of its board of examiners. He has represented the L.C.C. on the Committee of University College, London.

Mr. W. F. Spree, who, as announced in our issue of February 17, has been appointed by the Southern Railway as General Agent for Germany, &c., as from January 1, entered the service of the South Eastern & Chatham Railway in 1911, and obtained general station experience at Ore, Hastings, Crowhurst, and Battle. In 1914 he was transferred to the office of the



The Late Brig.-General G. H. Harrison

Formerly General Manager, Entre Rios and Argentine North Eastern Railways, and Chairman of G.W. of Brazil and Central Uruguay Railway Companies

Western District Superintendent at Redhill. Upon being released for military service in 1916 he joined his County Regiment, the 3rd Royal Sussex Regiment, and was subsequently transferred to the Machine Gun Corps. He was then granted a Commission and served with the M.G.C. in France, Belgium, and Germany. He was demobilised in September, 1919, and returned to the office of the Superintendent of the Line, London Bridge. Upon the re-opening of the Cologne agency in 1921 he was attached to the Cologne staff under Mr. H. C. King-Stephens, and was appointed Assistant Agent for Germany in 1935. Mr. Spree comes from an old railway family which, in the direct line of descent from his great-grandfather, has a total service of 422 years with the Southern

Railway and its predecessors, the South Eastern Railway and the S.E.C.R.

Brigadier-General G. H. Harrison, C.M.G., D.S.O., M.Inst.C.E., whose death was announced in the February 17 issue of THE RAILWAY GAZETTE, had a distinguished military and railway career. He was educated at Wirral College and Liverpool University, and, after serving as a sapper with the Royal Engineers in the South African war, entered the Civil Engineering Department of the L.N.W.R. in 1906, leaving two years later for South America, where he took part in construction work in Argentina and Brazil. On the outbreak of the war, Mr. Harrison returned to England to join the Army as a second-lieutenant, and was enabled to turn to practical advantage the wide experience he had gained in railway construction in South America. After serving in Gallipoli, he was sent to France and promoted to Lieutenant-Colonel and C.R.E. of the Naval Division as early as March, 1916—this alone constituting a remarkable instance of rapid promotion. On the formation of the Directorate-General of Transportation in France, Colonel Harrison was posted to it and was appointed Director of Light Railways in February, 1918, with the rank of Brigadier-General until the end of the war, when he retired with the honorary rank. He was awarded the D.S.O. in 1917, as well as the Order of the Crown of Belgium and the Croix de Guerre, and was made C.M.G. in 1918. After the war, he returned to South America as General Manager of the Entre Rios and Argentine North-Eastern Railways, holding that post until 1930, when he came back to England to join the boards of his two old companies, and subsequently he was elected to the boards of other South American railways, including the Cordoba Central, the Great Western of Brazil, and the Central Uruguay, becoming Chairman of the two last-mentioned.

Mr. W. M. Codrington, M.C., has been elected Chairman of the Great Western of Brazil Railway, in succession to the late Brig.-Gen. G. H. Harrison, C.M.G., D.S.O., whose death was reported last week (see also above). Viscount Bridgeman, M.C., has been appointed to fill the vacancy on the board. Mr. Codrington is Chairman of the Nyasaland Railways and Primitiva Holdings; and a Director of the Cordoba Central Railway and other companies.

As another consequence of Mr. Harrison's death, Brig.-General F. D. Hammond, C.B.E., D.S.O., has been

elected Chairman of the Central Uruguay Railway of Monte Video. Brig.-General Hammond has also been appointed a Director of the North Western of Uruguay Railway, and elected Chairman of that company. He is a Director of the Beira, the Central Africa, and the Rhodesia Railways.

The retirement of Mr. Charles Sheath from the board of directors of the Southern Railway Company, which we recorded briefly on page 273 last week, brings to a close a railway career which has extended over approximately three-quarters of a century. He was born in 1849 and entered the service of the old South Eastern Railway Company as a lad of 14 in 1863 in the Secretary's office under Dr. Samuel Smiles of "Self-Help" fame (incidentally one of the founders of *The Railway News*) who was at that time Secretary of the South Eastern Railway Company. Throughout his long career as a member of the staff, Mr. Sheath's work was in the Secretary's department. He was appointed an Assistant Secretary of the South Eastern Railway Company in 1893 and Deputy Secretary (to Mr. W. R. Stevens, then Chief Officer and Secretary of the company) in 1898. A few months later he became Secretary to the South Eastern Railway Company and also Joint Secretary with Mr. John Morgan to the South Eastern & Chatham Railway Companies' Managing Committee from its formation in 1899. At various periods he served also as Secretary to such associated and subsidiary railway companies of the S.E.R. as the Cranbrook & Paddock Wood Railway, the Crowhurst, Sidley & Bexhill Railway, and the Tenterden Railway; also various joint committees with other companies, such as the Croydon & Oxted, the Dover & Deal, and the Woodside & South Croydon. Mr. Sheath continued to hold office until the end of 1922 when the South Eastern Railway Company and the S.E. & C.R. Managing Committee were on the point of be-

coming merged into the Southern Railway Company. Mr. H. Cosmo Bonsor presiding on December 13, 1922, at the special general meeting of the South Eastern Railway Company then said that Mr. Charles Sheath had made up his mind to retire from the secretary-



Mr. Charles Sheath

Secretary, South Eastern Railway, 1899-1922;
Director, Southern Railway, 1923-39

ship of the company and not go into competition with others for the secretaryship of the new Southern group. He added that Mr. Sheath's energy and ability were unimpaired and would have made him a most admirable Secretary for the new group. His resignation, however, had enabled them to place Mr. Sheath upon their board as a Director and that had made him eligible to serve as a Director of the new Southern Railway group. Mr. Sheath was in fact elected by the proprietors of the South Eastern Railway as a representative director on the board of the Southern Railway Company, and he has continued to occupy that seat until the present time. At the 21st and final general meeting of the members of the S.E. & C.R. Pension Fund held

on March 26, 1928, Mr. Sheath, who was the Chairman of the fund, was the recipient of an illuminated address and various gifts as a token of the high esteem of the members. Brigadier-General the Hon. Everard Baring, then Chairman of the Southern Railway, who made the presentation, said that the circumstances were perhaps unique in that no fewer than 2,400 members of the company's clerical staff had subscribed to the testimonial.

Mr. D. G. M. Bernard has been appointed by the Minister of Transport to be an additional member of the Railway Rates Tribunal in place of Sir Hardman Lever, Bart., resigned. Mr. Bernard is a Director of the Bank of England, and of numerous other businesses. He is a member of the London Committee of the Hong-Kong and Shanghai Banking Corporation.

Mr. H. H. C. Barton, who was appointed last year to the position of Assistant Mechanical Engineer (Maintenance), London Passenger Transport Board, was educated at Marlborough and at Pembroke College, Cambridge. He served in the war with the Middlesex Regiment and the R. E. Cadet Unit. In 1923 he entered the service of the Underground Railways. Two years later he was appointed Sectional Assistant, Acton Works, a position which he held for the next five years, during a period when progressive overhaul was instituted. Mr. Barton was appointed Assistant Transportation Superintendent (Traction) on the Great Indian Peninsula Railway in 1930, shortly after the main line of that railway had been electrified. He subsequently became Traction Engineer, Rolling Stock, of the G.I.P.R., and was then responsible for the maintenance, operation, and overhaul of the electric locomotives and multiple unit-stock. Mr. Barton returned to England last year to take up his present position with the L.P.T.B., his duties with which embody the supervision and control of Acton Central overhaul shops.



Photo]

Staff dinner of the Chief Goods Manager, G.W.R., on February 17 (See report on page 331)

[Rawood

The Hon. Stephen Edward Vivian Smith, who has been appointed Assistant to the General Manager, Central Argentine Railway, arrived in Buenos Aires from New York on January 10, by the *Southern Prince*, and has taken up his duties with the company.

By a Decree issued by the Argentine Ministry of Public Works on January 20, Doctors Pedro F. Agote and Raúl Zavalia Lagos were officially recognised as legal representatives of the Central Argentine Railway.

Señor Luis Marcos has been appointed by Government Decree to be Chief Accountant of the Argentine State Railways, *vice* Señor A. Dillon, deceased.

The King, at Buckingham Palace on February 16 conferred the honour of Knighthood upon:—

Mr. William Chamberlain, Chairman of Traffic Commissioners, North Western Area, Ministry of Transport;

Mr. Edward James George, Director and General Manager, Consett Iron Co., Ltd.;

Mr. Henry Sheil Elster Vanderpant, Chairman, London and Home Counties Traffic Advisory Committee.

On the same date, Mr. John Purves, Principal Assistant to C.M.E. for Carriages and Wagons, L.M.S.R., was invested by the King with the insignia of Member of the Royal Victorian Order (Fourth Class);

Mr. George Lionel Darbyshire, Chief Officer for Labour and Establishment, L.M.S.R., was invested by the King with the insignia of Officer of the Order of the British Empire (Civil Division);

Mr. John Barrowcliff Scattergood, District Goods Manager at Birmingham, L.M.S.R., was invested with the insignia of Member of the Order of the British Empire (Civil Division).

PRESENTATION TO MR. J. W. ODDY

On February 17 at a gathering of L.N.E.R. Southern Area officers at Liverpool Street, with Mr. J. Lees, Assistant Superintendent, in the chair, a presentation was made to Mr. J. W. Oddy, Assistant to the Passenger Manager, on his retirement after 46 years' service. The presentation, which took the form of a grandfather clock and silver tea service, was made by Mr. C. J. Selway, Passenger Manager, who spoke in warm terms of the untiring and efficient work done by Mr. Oddy on behalf of the Passenger Department since it came into existence on amalgamation. Messrs. Mauldin, Barrington-Ward, Gracie, and others expressed appreciation of the cordial relations Mr. Oddy had maintained in co-ordinating the work of the Passenger Department with that of other departments, especially in connection with major schemes such as electrification; reference was also made to the high regard in which he was personally held both by representatives of the L.N.E.R. and other railway companies. Mr. Oddy suitably responded,

and stated that, whilst he was giving up work he had loved, he hoped still to be an interested observer of the company's progress and the attainment of a greater measure of prosperity in the not distant future.

A portrait and biography of Mr. Oddy were published in our January 13 issue.

INSTITUTE OF TRANSPORT

The following are among the elections made on January 9:—

Member

Mr. R. O. Squarey, Transport Officer, Imperial Chemical Industries Limited.

Associate Member

Mr. E. C. Cripps, Resident Engineer (Bathurst), New South Wales Government Railways.

Mr. C. J. Y. Dallmeyer, Assistant to Solicitor (Scotland), L.N.E.R.

Mr. T. R. Hague, Superintendent, Bridgewater Department, Manchester Ship Canal Company.

Mr. R. Hydari, District Transportation Superintendent, H. E. H. the Nizam's State Railway.

Mr. S. R. Nicholas, Assistant Secretary, New South Wales Government Railways.

Mr. T. McKie, Resident Engineer (Narrabri), New South Wales Government Railways.

Mr. E. E. Ford, who will continue to act as Secretary, has been appointed a Member of the Algoma Central & Hudson Bay Railway and Algoma Central Terminals Bondholders' Committee. He takes the place of the late Capt. J. C. Dalton.

We regret to record the recent death of Brig.-General Archibald Jack, C.B., a railway engineer who held appointments at different times on Chinese, South African, and South American lines. He was prominently associated with British intervention in Russia in 1918, being placed in charge of the British Railway Mission sent to Vladivostok to reorganise traffic on the Trans-Siberian Railway. After the war, Brig.-General Jack was for a time General Manager of the United Railways of the Havana.

From *The London Gazette* of February 14: Regular Army Supplementary Reserve of Officers, Royal Engineers, Transportation: to be Captains (February 15): R. K. Melliush (late Lt. T.A., General List), K. J. Soper, J. H. A. Hughes (late Capt., T.A., Res. of Off.).

To be Lieutenants (February 15): C. D. Davis (late Off. Cadet, Liverpool University Contgt., O.T.C.), E. G. Long.

To be Second Lieutenants (February 15): J. Goatcher (late Cadet, Whitgift Sch. Ctgt., O.T.C.), S. J. Cornfoot, W. T. Adams, A. C. Streetfield, F. W. R. Wheeler, H. C. L. Trickett, Sir Frederick Wombwell, Bt. (late Cadet Sergt., Repton Sch. Ctgt., O.T.C.), K. D. Cook.

The late Mr. Charles Booth, a Director of the L.M.S.R., whose death we recorded in our issue of December 16, left estate valued at £29,530 (£21,525 net).

Mr. James Boot, Signal Engineer of the General Railway Signal Co. Ltd., was on February 22 elected President of the Institution of the Railway Signal Engineers for the ensuing year.

CANADIAN PACIFIC APPOINTMENTS

The following appointments are announced as from March 1:—

Mr. W. H. Boswell, the company's General Agent for Scotland, is appointed General Passenger Agent, and Mr. R. E. Swain, General Passenger Agent, is appointed General Agent for Northern Ireland, succeeding Mr. H. T. Penny, who is appointed General Agent for Scotland.

We regret to record the sudden death on February 15, after an operation, of Mr. R. E. Bullough (late District Engineer, Crewe, L.M.S.R.). Mr. Bullough entered the service of the L.N.W. and G.W. Joint Railways at Birkenhead, and was transferred to the Crewe Divisional Engineer's office in 1909 on the maintenance of the joint lines being taken over by the L.N.W.R. At the outbreak of war he joined the Liverpool "Pals" and was afterwards commissioned in the Royal Engineers and served with that corps until the end of the war. After demobilisation Mr. Bullough returned to Crewe, and was in 1920 transferred to the District Engineer's office at Abergavenny as Chief Draughtsman and afterwards Assistant Engineer, returning to Crewe in June, 1932, on the retirement of the late Mr. Arthur Turnbull, as District Engineer.

The interment took place on February 18, at Wistaston church near Crewe, and was attended by a large number of L.M.S.R. officials, including Mr. W. K. Wallace, Chief Engineer of the company.

PENNSYLVANIA RAILROAD APPOINTMENTS

The following appointments in the Operating Department became effective on February 1:—

Mr. J. C. White, formerly General Manager of the Western Region at Chicago, became General Manager of the Central Region at Pittsburgh, Pa.

Mr. J. M. Symes, who was previously Vice-President in charge of Operations and Maintenance of the Association of American Railroads, Washington, D.C., succeeded Mr. J. C. White as General Manager at Chicago.

Mr. W. B. Wood, the former Chief Engineer of the Central Region at Pittsburgh, was appointed Chief Engineer of the Eastern Region at Philadelphia, in succession to Mr. E. B. Temple, who had been granted leave.

Mr. C. I. Leiper, formerly General Manager of the Central Region at Pittsburgh, became Chief Engineer of that region.

GREAT WESTERN RAILWAY COMPANY

Heaviest traffic decline for a century—Necessity of conserving funds—Hotels and steamers improve—Savings in train- and shunting-mileage—Appreciation of new coaches—Mounting wages bill—Hopeful factors in outlook

The annual general meeting of the Great Western Railway Company was held at Paddington station on Wednesday, February 22, the Rt. Hon. Viscount Horne of Slamannan, P.C., G.B.E. (Chairman of the company) presiding.

The Secretary (Mr. F. R. E. Davis) read the notice convening the meeting.

The Chairman: My lords, ladies, and gentlemen, at gatherings where the advent of the New Year is celebrated, it is not unusual to include in the proceedings a toast to the year that is gone. It would, however, require some hardihood on the part of anybody addressing this or any similar meeting to raise one's voice in praise of 1938. Politically it was a year of prolonged tension and unrelieved anxiety, and so far as trade and transport are concerned, it belied entirely the happy anticipations with which 1937 had left us. In the beginning it flattered us with an illusion of fair promise, but in the end disappointed us with rudely shattered hopes. Yes, indeed, ladies and gentlemen, instead of fulfilling the promises of its predecessor, the year just past went steadily from bad to worse. Taking the country as a whole, industrial production fell from quarter to quarter, and ended up, on the Board of Trade index, fourteen points lower than the figure at which the year started. Employment declined and the number of unemployed increased by over 20 per cent. as compared with the records of 1937. The great basic industries in which we are especially interested, exhibited the blighting effects of the change in conditions. The coal output of the United Kingdom fell by twelve million tons, and the export of coal and coal-products by six million tons. The decline in the production of iron and steel was considerable and continuous and fell in December to a figure lower than any recorded for four years past. Exports of steel were correspondingly reduced. Pig-iron followed a similar course. Although Admiralty orders provided a substantial amount of work for several shipbuilding yards, private orders dwindled seriously, and in the end many yards were left short of employment. House and factory building, which often gives a significant clue to the internal activity of the country, revealed the same symptoms of recession; while our international trade showed a discouraging diminution to the extent of ten per cent., both in exports and in imports.

Crisis Intensified Trade Depression

I do not think it would be accurate to attribute the whole burden of these misfortunes to the threats of war which reverberated throughout Europe for a considerable part of last year, but it is certainly true that the loss of confidence created by the fear of a European conflict intensified and prolonged every other adverse factor in the situation. Trade cannot thrive when apprehensions and uncertainties dominate the scene; nor in such circumstances can developments take place, nor new enterprises start. Even the powerful momentum of the re-armament programme is not enough to counter such retarding forces. One thing which has been clearly revealed by our recent experiences is that our expenditure in re-arming the nation, immense as it appears, does not exercise a preponderating influence in the vast mass of the general trade of the country. I have given this short sketch of conditions under which business was carried on in Great Britain during 1938, in order to explain the sharp contrast between the railway results in 1938 and 1937. The stark fact is that, during last year the country suffered a very severe recession in trade—although very many people were unwilling to admit it, particularly members of the Government—whose effect was felt in the territory served by the Great Western Railway system in a degree

almost worse than in other parts of the United Kingdom. It is only necessary to take as an example the case of pig-iron and steel ingots. In 1938, compared with 1937, the production of Monmouthshire and South Wales decreased by 864,900 tons, or 32.9 per cent., whereas for the United Kingdom as a whole, the decrease was 2,590,200 tons, or only 19.9 per cent.

In times of diminishing trade you cannot have expanding traffics. The effect of these inimical conditions upon our fortunes is to be read in the statistics of our railways and our docks. Whereas at the end of March last, the tonnage conveyed over the company's system was three-quarters of a million tons in excess of that of 1937, we ended up the year with a total decrease of over seven and three-quarter million tons. The story of our South Wales docks in 1938 has the same bad ending. Our imports and exports for the first quarter of the year showed an increase of 400,000 tons, but we passed into the new year with a realised deficit of 3,160,000 tons. A decline of these dimensions in so short a period is unparalleled in over 100 years of history.

Domestic Misfortunes

In addition to the adverse political and economic factors from which we suffered last year, we were afflicted by certain domestic misfortunes peculiar to ourselves, which involved us in considerable unforeseen expenditure. On August 3 and 4, during the period of our peak traffic, the South Devon area experienced severe thunderstorms which caused extensive flooding and damage to railway lines. The embankment near Torre station subsided, affecting both the up line from Torquay and the down relief line between Newton Abbot and Aller junction. The flood water also severely damaged the railway bridge over the River Teign, compelling us to close the up and down main lines. A fall of rock in Dainton tunnel caused by excessive rainfall also occurred later in the month. Again, in November, considerable damage was caused to the railway lines in North Wales by severe gales and floods. To add to our troubles the Paddington arrival signal box was completely destroyed by fire, necessitating the hand-signalling of trains into Paddington for several weeks, until a temporary electric locking frame was installed pending the manufacture of a new frame. Finally, on December 22 a second fire destroyed the Westbourne Bridge signal box at Paddington. These, ladies and gentlemen, I suppose would be called in ordinary parlance "acts of God" which would seem to justify a definition that once I heard from an old Scottish Judge, who said "an act of God was something that no reasonable man would think of doing."

Traffic Working under Difficulties

These mishaps seriously disorganised the working of our lines and we were compelled to adopt exceptional measures to meet the traffic requirements. Many trains had to be diverted, speed restrictions had to be imposed—in some cases for several weeks—whilst the repairs were being carried out, and serious delays resulting from the dislocation of our passenger and freight train services added considerably to the heavy expense of making good the damage to our property. With this accumulation of untoward circumstances in your minds, I am sure that you will appreciate the unhappy effects which they have had, both on our receipts and our expenses; and you will keep in view that we did not have a Coronation to stimulate the business of the country and help our traffics as we did in 1937.

Now I turn to some remarks about the accounts. The outstanding fact in our accounts is that our total net revenue

fell from a figure of £6,886,505 in 1937 to £5,043,753 in 1938, making a difference between the two years of £1,842,752. The measure of this decline will be realised when it is recalled that it appreciably exceeds the figure which it cost us to pay a four per cent. dividend on the ordinary stock last year. It ought also to be kept in mind, as between 1937 and 1938, that the latter year had a longer run of the five per cent. increase in charges.

Notable Economies

The figure of £5,043,753 represents the lowest net revenue since 1933, and it would have been still lower but for the economies effected by the management in the latter half of the year. These savings, due partly to the reduced volume of traffic and partly to working economies, amounted to over £500,000, and a further saving of approximately £225,000 was effected by curtailing our programme of rolling stock renewals, which is not reflected in our revenue expenditure. As you know we make an annual provision on a fixed basis for the renewal of our rolling stock and although the actual expenditure was considerably reduced, the amount charged against the accounts of the year was £55,000 in excess of the previous year. I venture to commend these savings to you as an accomplishment worthy of your notice, especially when you realise that, of the additional expenditure for the year, £760,000 consisted of items of wages and raw materials, over the cost of which the management could have no control. In the result, our net revenue sufficed to meet the interest on loans and debenture stocks and the dividends on the rent charge, guaranteed and preference stocks and leave a surplus of £50,156. The sum brought forward from last year's account was £151,578, so that the amount available for a dividend on the ordinary stock was the meagre margin of £201,734.

Stock Still on Chancery List

You are aware of the decision at which the board arrived—that £100,000 should be withdrawn from the Contingency Fund, that a dividend of ten shillings per cent. should be paid on the consolidated ordinary stock, and that £87,085 should be carried forward. This decision breaks a proud record of nearly seventy years during which the Great Western Railway dividend on its ordinary stock has never fallen below three per cent.; but although it is grievous to our pride, we must face the stern facts of the situation and I am sure that we would all wish to do that which can best sustain the ultimate interests of the company and the stockholders. It is true that we now lose the status of what are commonly called "full trustee stocks," but by paying this small dividend we remain in the "Chancery" list of trustee stocks and, as matters stand today, I do not believe that we shall suffer much practical disadvantage from this "fall from grace." I, along with all my colleagues, however, cannot help feeling keenly the disappointment of our stockholders. There are some who thought that the dividend would be kept up out of reserves, as on previous occasions, but, although we are still in a strong position financially, it is obvious that, in view of the uncertainties which surround us, both at home and abroad, and of the increased burden of expenditure imposed on us during recent times, we cannot safely dissipate our funds. We should rather conserve them for such eventualities as may confront us. It is a source of strength to us, that after the proposed transfer of £100,000 from the Contingency Fund, that fund will still stand at a figure of over three million pounds.

Capital Expenditure

I would now like to draw your attention to certain items in the accounts. Capital expenditure in 1938 was restricted to works of special character, the amount of £973,000 relating mainly to schemes which are being financed by moneys raised under the Railways (Agreement) Act, 1935, and the London Passenger Transport (Agreement) Act, 1935. These schemes were planned with the assistance of the Government under circumstances which I explained to you at the time. Two substantial credits appear in the capital account. One of them is the outcome of an arrangement which we made

with the London Passenger Transport Board for the disposal of our interests in the jointly owned electric stock purchased for operation on the Hammersmith & City Line. The object of this new arrangement was to enable the board to replace the stock with vehicles built to its own standards which, being interchangeable, could then be used to greater advantage. The other large credit relates to docks, harbours, and wharves, and represents redundant works and equipment which have been displaced and written out of the capital account.

Road Transport, Hotels, Shipping, and Aviation

Our participation in road transport companies has continued to show satisfactory results and the total yield on our investment is now nearly 9 per cent. as against 7½ per cent. in 1937.

The profits from our hotels and catering department show an improvement. This is particularly gratifying in the case of the Great Western Royal Hotel, Paddington, where the substantial expenditure which was involved in its modernisation has already proved to be fully justified.

The net receipts from steamer services were again higher than in the previous year, due to the larger number of passengers carried to and from the Irish Free State and the Channel Islands.

With regard to air services, the reduction of £6,000 in our loss on air transport is accounted for by the transfer of services formerly operated on our behalf by Railway Air Services, to a new company registered under the name of Great Western & Southern Air Lines Limited, which also took over the services operated on behalf of the Southern Railway and those run by Channel Air Ferries Limited. We have agreed to take a small financial interest in this new company, which, it is anticipated, will benefit from a share in the Government subsidy and be able to secure a greater co-ordination of the various air services with advantage to all concerned.

Passenger Traffic

Now I turn to passenger traffic. We compiled our winter timetable covering the period from October, 1937, to July, 1938, in the light of the improvement experienced in the previous year, and we added certain trains in the anticipation that the development would continue. We also compiled our summer timetable on the assumption that the granting of "holidays with pay" would stimulate travel by rail and justify some additional mileage. Unfortunately in both cases our hopes were disappointed and for the whole year we conveyed 7,230,000 fewer passengers over the company's system (excluding season ticket holders) than in 1937, the receipts, which amounted to £11,454,000, being £35,000 less. The deficit would have been greater had we not had the benefit of the higher charges which came into operation in October, 1937. Although the regular passenger train services were augmented for the larger part of this year, economy was effected in special mileage. We also curtailed the present winter service, with the result that the total passenger train mileage run by the company's engines during the whole year shows a decrease of over 250,000 miles. The reduced volume of goods traffic also enabled us to effect a saving of 912,000 train-miles and 927,000 shunting-miles. In spite of the many difficulties which we have had to encounter owing to damage by storms, there was an appreciable improvement in the general timekeeping of our passenger trains, and in the average speed of the goods trains.

Rolling Stock

In view of the decline in trade, we considered it desirable to curtail our renewals programme, except in the case of locomotives, and our stock of carriages at the end of the year shows a reduction of 263, while the reduction in the number of wagons is 1,197. Various improvements were introduced in our rolling stock, including the fitting of two additional doors on the corridor side of all the new corridor coaches, and my correspondence indicates that this will be a highly popular change. We have also improved the interior decoration and upholstery in some of our non-corridor coaches, which were put into traffic experimentally and

met with general approval. Five buffet cars of a new design fitted with six-wheel bogies to ensure smoother running were also put into service during the year. They are comfortably furnished and provide seating accommodation for 21 passengers at tables, with eight additional places at the counter. It is gratifying to know that these have already been a source of additional revenue and have evoked a number of appreciative comments from passengers. Diesel cars continue to show their utility, and the 20 new ones, to which I referred last year, are now being completed and will be put into service during the year.

Goods Traffic

Now I turn to goods traffic, and I shall have to give you a considerable number of figures, but a meeting of railway stockholders is the only meeting that I know that enjoys figures and is the only meeting which is intelligent enough to follow them. But I warn you, these figures are rather dreary figures, rather unhappy and unkind. The receipts from all freight traffic amounted to £14,905,000, a decrease of £1,196,000. Coal receipts declined by £334,000, heavy minerals by £556,000, and general merchandise by £306,000. The total tonnage of freight traffic conveyed by us during the year was 64,270,000, a decrease of 7,793,000 tons. Coal accounted for 3,880,000 tons of this decrease; iron and steel traffics for 2,185,000 tons; and other heavy traffics including china clay, gravel, sand, and road making materials, timber and tinplates, for 725,000 tons. All these figures reflect, of course, the severe recession in trade. Our conveyance of general merchandise traffic, which is particularly susceptible to road competition, declined by over one million tons—a fact which will properly form the foundation of certain observations when I come to comment on what is now known as the “square deal.”

Docks

As to the Docks: the total imports and exports dealt with at our South Wales docks were 3,160,000 tons less than in 1937, resulting in a loss of revenue of £250,000; most of the tonnage lost was in connection with shipment coal, but there were also heavy decreases in tinplates and iron and steel commodities. Coal shipments to France, the largest customer of South Wales, were the lowest we have ever experienced—if we omit the strike year of 1926—and showed a decrease of 1,668,000 tons. Shipments to Portugal and to Argentina also show heavy declines. Our total exports of coal only amounted to 19,650,000 tons, or roughly one half of the quantity exported in 1913, and 10,475,000 tons less than in 1929. The decline in imports amounted to 923,000 tons, the chief losses being in iron ore, steel billets, &c., and timber. In these circumstances it is not surprising that the gross receipts from the docks fell by £250,000. We were able, however, to offset this loss by reduced expenditure to the extent of £110,000, leaving a decrease in net receipts of £140,000.

The figures which I have just given you make a dismal procession of reduced earnings from our transport and other services. I have set them out in order that the vicissitudes to which the railways are subject may be more fully realised, as well as the sacrifices which are made by the ordinary stockholders in giving the public the services which they enjoy on our railway systems. I could wish that a sober realisation of these facts might percolate also to those who, at such times, make claims for further increases in wages.

Last year I informed you of a decision of the Railway Staff National Tribunal, as the result of which the cost of our wage bill rose by £695,000 per annum. This came on the top of the award in 1936 which added £256,000 a year to our wage costs. Although those claims represented almost entirely the restoration of former conditions, they involved expenditure of such magnitude that the financial position of the railway companies was naturally affected very seriously. Notwithstanding this, they were followed in May last by claims for higher rates of pay and improved conditions of service by the three railway trade unions. To meet these fresh claims would involve an additional expenditure estimated at nearly seven million pounds per annum for the four main-line companies. They were submitted to the Railway Staff National Tribunal whose decision we are

now awaiting. Claims have also been submitted by the railway shop staff for an increase of 2d. a hour with a minimum of 50s. a week, a 40-hour week, a guaranteed day and week, and 12 days' annual holiday with pay. These claims have been rejected by the companies, and certain of the items are being referred to the Industrial Court.

Dependence on High-Rated Traffic

I have referred on previous occasions to competition between railway and road, and the disabilities under which we operate as compared with road hauliers. This company derives nearly one-half of its entire total goods revenue from the higher-rated classes of merchandise traffic, which are particularly exposed to road competition by public hauliers and by traders who provide their own transport. The diminution which we have experienced in respect of this traffic continues to cause us grave concern. Although rail transit is far more suitable for many consignments which now pass by road, we cannot hope to get our proper share of the conveyance of general merchandise as long as the existing unequal conditions of competition continue; nor shall we succeed in preventing further diversions from rail to road unless Parliament passes legislation to relieve the railway companies from many statutory regulations governing their charges for such traffic, which are quite unsuitable to the unforeseen conditions of the present day.

In the days when rail transport had a virtual monopoly Parliament decided that the rates to be charged should be designed to meet the requirements of industry as a whole, and that national interests demanded that certain traffics—such as those of the basic industries—should be carried at less than the full proportionate cost of the services given, the loss to the railways being compensated by higher rates for the more valuable traffics. But the advent of road transport has entirely changed the position. The value of the traffic conveyed can no longer be regarded as a governing factor in the fixation of rates. It is the cost of the service to the trader which has become the main consideration, and where he finds that it is more economical to him to utilise road transport he naturally does so. This generally means that the regular and more remunerative bulk loads which can be conveyed by road are so conveyed and that the railways are left to deal with the smaller consignments which no one else desires to carry. How advantageous is the position of the road haulier, in competing with the railway! He is free to select his loads, and to fix his rates on ordinary commercial lines, having regard only to the cost of providing the particular service required.

Railway “Square Deal” Demands

The railways, on the other hand, are obliged to accept all the traffic offered to them. That is an obligation of which they do not desire to get rid, but they cannot be expected to maintain an efficient public service without an adequate revenue, nor is it right that the railways should be bound by restrictions which prevent their stockholders from receiving a reasonable return on their capital. It would therefore seem now to be right that we should be given freedom to fix such reasonable charges as we may think fit for the conveyance of merchandise and mineral traffic, subject to a right of appeal on the part of the trader to an appropriate tribunal. To put the matter in a nutshell—although road hauliers can quote any rate they like, the railways only ask to be allowed to charge reasonable rates and they offer the traders a right of appeal if they consider any rate to be unreasonable. Further, there is a large volume of traffic passing by road in traders' own vehicles for which rail transport is more suitable. The railways want freedom to quote rates which will attract this traffic back to the rail in cases where it would be profitable to do so.

The proposals which the main-line railway companies submitted to the Government in November last were referred by the Minister of Transport to the Transport Advisory Council for their urgent consideration, with an intimation by the Minister that there appeared to be a *prima facie* case for affording relief to the companies. The proposals have also received a considerable measure of public sympathy and support from the general public, and you have probably already seen in the press the terms of the joint memorandum

submitted to the Transport Advisory Council by the railway companies and the road transport interests. In this interesting document it is stated that the road hauliers raise no objection to the railway companies' proposals, provided that the new legislation includes some additional provisions to secure a greater measure of co-ordination in the road industry itself, and to facilitate co-operation with the railways through the medium of voluntary agreements. In this proviso the railway companies have concurred.

Seeking Co-ordination of Transport

The Government has made it clear that the ultimate objective should be the co-ordination of all forms of transport. We share the view expressed by the Transport Advisory Council that this can best be secured by voluntary agreements. We already have agreements with the coasting liner companies, and we believe that, if our proposals are accepted, there should be no serious difficulty in negotiating agreements with our road competitors so as to ensure the development of both forms of transport on a basis which would give the public adequate protection and the full advantages of both services. We welcome the recent announcement of the Minister of Transport that "nothing could be allowed to happen which in any way diminished the efficiency of the railways as the iron backbone of the country's commercial economy." We welcome that.

I am bound to point out, however, that unless our position improves we may be forced, on grounds of economy, to curtail facilities which have been greatly increased in recent years and also to reduce further our stock of locomotives, carriages, and wagons, as we should not be justified in maintaining the present margin of additional vehicles which can only be used to advantage during peak periods, or in the event of a national emergency.

The Minister also expressed the view that it was a mistake to legislate in advance of public opinion. I hope, therefore, that all railway stockholders will put pressure on the Government to take Parliamentary action in the present session to free the railways from restrictions which are not only out-of-date, but now impede all progress towards the ultimate goal of co-ordination between the transport systems of the country. The prospect of an advance being made along the lines of the "square deal" will do something to put new heart into the railway services; and if it results, as it should, in all forms of transport being brought together in common working arrangements, much waste will be avoided and the country will be more efficiently served.

The Outlook

If you ask me today for an estimate of our position in other respects, I confess I find it hard to answer. So much depends on the course of international politics, and he would be a rash man who would predict anything with confidence while Europe is still so unsettled. Leaving international politics aside, there are certain factors which would seem to give a chance of better trade and therefore of more traffic on the railways. There is, for example, the recently-concluded arrangement between the coal interests of Great Britain and Germany, which ought to make our foreign coal markets more secure; and there is the Anglo-American commercial agreement which should have the effect of helping trade as a whole by creating a freer exchange of goods. Further, in the year 1938 many manufacturers were living on accumulated stocks of raw material with the result that our railways had much less to carry. Now, I am told that these stocks are more or less exhausted, and that we shall soon be engaged in hauling new supplies. Again, the economies in working which we effected in the second half of last year still continue, and should make a substantial difference in our accounts for 1939. Finally, seventy-one new factories have established themselves upon our system in the course of last year, and I am glad to say the demand for sites still continues. We may hope therefore for some increase in traffics from this source before long. This last achievement we owe largely to the indefatigable work of our staff and the persuasive power of our directors. Indeed, the only happy thing about this disappointing year is the enthusiasm and energy with which the whole personnel

connected with our system, in every grade and from one end of the system to the other, have worked for the benefit of the company.

Resolutions

I shall now be glad to answer, as far as I am able, any questions that anyone may desire to put after I have formally moved the resolution. The resolution is in these terms: "That the report of the directors and statement of accounts for the year ended December 31, 1938, be received and adopted." I shall ask Lord Palmer to second that.

The Rt. Hon. Lord Palmer (Deputy Chairman): I have very much pleasure in seconding that.

The Chairman: Now, ladies and gentlemen, the meeting is open for any questions that may be asked or any remarks that may be made.

Remarks of Shareholders

Mrs. Common enquired whether as trade was so bad the directors' salaries had gone up or down, and observed that the present position was very difficult for poor widows such as herself who had depended upon income from railway shares.

Mr. W. Sallaway in commenting upon the Chairman's remark that the Government would not act ahead of public opinion, said it took a long while to get the people of free trade England to believe in tariff reform and that it would take a long while to get the Government of this country to see the railways needed protection and not a "square deal." In his opinion a "square deal" would do no good, neither would co-ordination. He felt strongly that the only way in which the railways could be safeguarded adequately was by removing a large proportion of motor traffic from the roads, and transferring the heavy traffic to the railways.

Mr. W. H. Robson referred to a recent newspaper article which remarked that not merely would a National Transport Board be able to dispense with many of the railway directors, but that it would be able to convert present railway stocks into Government railway guaranteed stock at a very much lower rate of interest. Mr. Robson felt that remarks of this kind should be challenged by the railway companies through the medium of their monthly magazines and otherwise. He added that the Government was largely responsible for the present unfavourable position of the railway stockholders. The Government took over the railways during the war, ran them absolutely to death, and handed them back with considerably increased wages bills. On the G.W.R. before the war, the amount paid in wages and salaries was about equal to that paid in interest and dividends. Last year this ratio was as 11s. 8d. is to 3s. 4d. In other words the amount paid in wages and salaries was 3½ times the amount paid in interest and dividends. Mr. Robson also referred to the heavy toll of death on the roads showing that last year 6,595 persons were killed and 226,854 injured, and that about 90 per cent. of the police force of this country was engaged in controlling road traffic. The remedy in his view was to remove at least half the traffic from the roads and put it back on the railways.

Mr. J. Rowling recalled that the Contingency Fund stood at a figure of over £3,000,000. The Chairman had told them that the figures for 1938 on the G.W.R. showed a bigger percentage fall than had happened for a century. Surely that constituted just those circumstances which would justify a withdrawal from the Contingency Fund far in excess of £100,000.

Mr. H. Adamthwaite referred in particular to horse and cattle transport and quoted a number of examples which he suggested indicated that the facilities for this class of traffic which were provided by the railway companies were inadequate, and he recommended that the railways should undertake to carry such traffic by road themselves rather than not carry it at all.

Mr. Ashley Brown said that the Chairman had really summed up the history of the past twelve months in a sentence, when he had told the shareholders that it was impossible to expect increasing receipts in days of diminishing trade. He knew the difficulties with which the company had been called upon to contend and admired the way in which its officers had grappled with some of these

difficulties. He thought that the shareholders had no complaints to make and could only hope that next year would show an improvement. Referring to the "square deal" campaign he said that the stockholders were delighted at long last the railway companies were fighting to put an end to their difficulties. It was also a cause of pleasure that the railways were fighting with vigour and that the four groups were united in one purpose and one object. He suggested that the negotiations should have been conducted by the four railway chairmen rather than by the general managers who had so much to do in other directions.

Mr. W. H. Silcocks thought that whereas stockholders were all encouraged in 1937 and all more or less discouraged in 1938 that the company should have asked its employees for relief under present conditions.

Mr. J. F. Bradford addressed the meeting as a retired railway officer and said he was not going to criticise nor to give a heap of statistics. He felt he must protest against suggestions that the Chairman and the Board of Directors did not listen very patiently to speeches made at the annual meetings. It was not the directors who shouted people down but the stockholders themselves, first because they could not hear the speakers, and secondly because the speakers often said what all had an opportunity of reading elsewhere. He would like to support a remark of a previous speaker in asking for a little greater share of the Contingency Fund to be distributed. Viscount Churchill some years ago had answered a question in that room saying that the Contingency Fund was for a rainy day. That rainy day was here.

Mr. Fraser asked the Chairman whether on future occasions it would be possible to equip the room with amplification devices to facilitate hearing.

The Chairman's Reply

The Chairman: I very much sympathise with what the last speaker has said, because in fact I have had very great difficulty of hearing many of the questions which have been put from the audience. If there is anything we can do to make this room a little more comfortable to hear in, we shall undoubtedly try to do it.

Ladies and gentlemen, we have had a very interesting series of questions and perhaps the one which comes most home to the stockholders who are present and others who are not here is that which was put forward by Mr. Rowling in the first place and in the second place by Mr. Bradford. The suggestion that they made was that it might have been possible to use up some further portion of this contingency fund in order to make the dividend a little higher. Ladies and gentlemen, of course you can very well understand that the last thing that the directors wished to do was to decline from our old position of 3 per cent. on the ordinary stock, which as I have said, we maintained for something approaching seventy years. That is the last thing we should have desired to do and of course it is only dire necessity which brings us to the position at which we put forward our recommendation. What I would venture to remind both Mr. Rowling and Mr. Bradford of is this fact, that since the year 1922 we have distributed amongst our stockholders, in order to maintain at least 3 per cent. on the ordinary stock when we were not earning it, no less than £8,210,000 from the Contingency and General Reserve Funds. When you have regard to these figures, do you think it would be wise in circumstances like the present for a great concern like this which is dealing with £170,000,000 of capital that we should leave ourselves without a reserve fund? I am perfectly sure that you would not support that proposal for one moment. It is only in the interests of the stockholders themselves, that we are preserving their property.

The other questions which I have to deal with come in the first place from Mr. Sallaway, who advocates a protection for the railways. I am greatly comforted to think that anybody should go any further than we do at the present moment in our propaganda, and if he can induce other people to support him we shall be delighted.

Mrs. Common is inquisitive, as a lady would be, naturally, about the director's fees. I venture to suggest

to the meeting that the sum of £23,900 which is part of the amount the stockholders voted many years ago, is a very small sum in comparison with the fees paid for direction of other large industrial companies whose interests are not so extensive as ours.

Mr. Robson thinks that we should go in for more propaganda and reply to papers such as he quoted. If we were to take notice of all these paragraphs, I am afraid our staff would have nothing else to do. As to his remarks about the question of wages, I am sure that the meeting realises that in matters of wages, whilst we put forward our representations to the Railway Staff National Tribunal, the final award rests with that body.

Mr. Adamthwaite raised a question in which I know he is very keenly interested and he put it with very great force and cogency. We are very anxious to do this traffic with regard to horses. It is not quite true to say that we do not convey any by road, as we do convey a certain amount of traffic in that way, both cattle and horses. The great difference between the road hauliers and ourselves is this, that we have to pay our standard rates of wages to our employees, but the road hauliers have much greater freedom and can probably get labour far more cheaply than we can.

Mr. Silcocks spoke next, and I should like to form a reply to him, if I knew exactly what he was driving at. So far as I could gather, he was complaining about the number of people killed on the roads. We all deplore the facts that he has stated in connection with that matter.

I am very glad to see Mr. Ashley Brown here again today. He has done much to galvanise the stockholders into the requisite action in connection with their interests. But I must say that one of the pieces of advice which he gave us today, I somewhat dissent from. It was his statement with regard to the interest that ought to be taken by the chairmen of all the companies in the negotiations in connection with the "square deal." He may take it, that all the chairmen of the companies are taking a very active part in that matter and that what has been accomplished has been with their sanction. But now he says that the actual negotiations with regard to the "square deal" have been put into the wrong hands, in that they are being conducted by the general managers. I am not sure whether Mr. Ashley Brown would adhere to his opinion if he knew all the circumstances of these negotiations. It would be quite hopeless for anybody but the general managers to conduct them in view of their wide ramifications. If anybody else had taken on the negotiations, they would have had to adjourn their meetings time after time, to go back for the information which was necessary. And I am sure we all agree or ought to that what has been accomplished in a short time is really marvellous. We are greatly comforted by the recent expression of opinion of the Minister of Transport, to which I referred, and I think that says a very great deal for the people who have carried on the "square deal" negotiations. I think that covers all the important matters about which I have been asked, and now with your consent, I will put the motion for the approval of the report, to the meeting.

Resolutions

The motion that the report of the directors and statement of accounts for the year ended December 31, 1938, be received and adopted was put to the meeting and declared carried unanimously.

The Chairman: Then I have to move: "That dividends be paid for the half-year ended December 31, 1938, of £2 10s. per cent. on the consolidated guaranteed stock, £2 10s. per cent. on the consolidated preference stock and £2 10s. per cent. on the five per cent. redeemable preference stock (1950). That a dividend of ten shillings per cent. for the year ended December 31, 1938, be declared on the consolidated ordinary stock. That such dividends be paid on and after the 2nd proximo to the proprietors who were registered in the books of the company when balances were struck on the 20th ultimo."

Lord Palmer: I have much pleasure in seconding that. The motion was put to the meeting and carried unanimously.

The Chairman: Now I have to call upon Mr. Stevens to move the re-election of the directors.

Mr. W. J. Stevens: My Lords, ladies and gentlemen, I beg to move that the following directors now retiring by rotation be and they are hereby re-elected: Charles J. Hambro, Esq., M.C.; Major The Hon. John J. Astor, M.P.; the Hon. Sir Edward C. C. Cadogan, K.B.E., C.B.; the Rt. Hon. The Earl of Dudley, M.C.; the Rt. Hon. Lord Dulverton, O.B.E.; the Rt. Hon. Lord Portal, M.V.O., D.S.O.; Sir Henry B. Robertson; Colonel Sir W. Charles Wright, Bt., K.B.E., C.B.

Mr. R. Loxdale: I beg to second that.

The motion was put to the meeting and declared carried unanimously.

The Chairman: I call upon Colonel Brooke-Hitching to move the next resolution.

Lt.-Col. P. M. Brooke-Hitching: Ladies and gentlemen, I beg to move that the following gentlemen be and they are hereby appointed members of the Audit Committee for the ensuing year: Sir George Lewis Barstow, K.C.B.;

Sir W. Edgar Horne, Bart.; Reginald J. R. Loxdale, Esq.; D. Rupert Phillips, Esq.; W. J. Stevens, Esq.

Mr. Newlands: I have much pleasure in seconding that.

The motion was put to the meeting and declared carried unanimously.

The Chairman: Ladies and gentlemen, that concludes the business of the meeting. I have to thank you on behalf of myself and my colleagues for your attendance today, and for the very courteous hearing which you have given to my speech and to the views which the directors have put forward. I hope that we may meet under happier circumstances a year hence.

Mr. W. J. Stevens: Before we separate I should like to move, and I am sure you will support it, a very hearty vote of thanks to the Chairman, directors, General Manager, and staff generally for their services to the company.

Sir Robert Vaughan: I have much pleasure in seconding that.

The motion was put to the meeting and declared carried unanimously.

MERSEY RAILWAY COMPANY

Results and possibilities of new through train services to the Wirral

The annual general meeting of the Mersey Railway Company was held at Winchester House, Old Broad Street, E.C.2, on February 23, Mr. John Waddell, Chairman of the company, presiding.

The Secretary (Mr. J. E. Blacklin) read the notice convening the meeting.

The Chairman, in moving the adoption of the report and accounts, said that after making due provision for the renewal funds the net revenue for the year was £94,667, as compared with £89,006 for 1937. To this was added the amount brought forward from last year's account, £2,201, making a total of £96,868. After deducting from this sum the interest on the debenture stock, £56,143, the appropriation to the general reserve fund, £1,000, and the dividend on the preference stock, £19,472, making altogether £76,615, there remained a balance available for payment of dividend on the ordinary stock of £20,253, as compared with £14,558 for 1937, an increase of £5,695. Of this sum they had recommended that £17,653 5s. 8d. be applied in payment of a dividend on the ordinary stock of 1½ per cent., and that the balance of £2,600 be carried forward to next year's account, as compared with £2,201 for 1937.

The gross receipts from railway working for the year were £230,510, as compared with £221,513 for 1937, an increase of £8,997, or 4.06 per cent. The expenditure on the railway working for the year was £135,395, as compared with £131,410 for 1937, an increase of £3,985, or 3.03 per cent. This left the net receipts from railway working at £95,115, as compared with £90,103 for 1937, an increase of £5,012, or 5.56 per cent.

The new through service of electric trains between Liverpool and West Kirby, and Liverpool and New Brighton, was begun on Sunday, March 13, when a full week-day service was run in order to accustom the staff to the altered conditions, and the official opening by Lord Stamp, Chairman of the L.M.S.R., took place on the next day. The through services of electric trains were operated by the L.M.S.R. and their own company, the L.M.S.R. providing the trains and train crews for operating the service between West Kirby and Liverpool Central, and the Mersey Company providing the trains and train crews for operating the service between Liverpool Central and New Brighton. The expenses incurred by each company in working its stock over the other company's line were adjusted on a reciprocal hire basis and were so dealt with in the appropriate abstracts of accounts.

Since the inauguration of the new services the through traffic between Liverpool and the Wirral line showed a considerable increase. Against this, as was anticipated, some proportion of the passengers who previously joined the Mer-

sey trains at Birkenhead Park station had now transferred to through rail passengers, and some loss had occurred through this diversion, but, on the whole, the results were satisfactory to their company. It was satisfactory to note that an increase of 15.18 per cent. in the total train mileage had been met by an increase of only 3.03 per cent. in the working expenses.

The traffic generally during the year had been satisfactory and the increased traffic resulting from the introduction of the new electric services on the Wirral Section last March had assisted very materially to secure the results reported. He had mentioned last year that the railway companies had received authority to increase their standard rates and fares by 5 per cent. from October 1, 1937, but their board did not consider that such an increase as applied to local fares would be advantageous to their company. Their general policy was to provide a good train service at attractive fares and it was probable that better results would have been secured during the summer months if more clement weather had prevailed, particularly at the week-ends.

Since the last meeting the Merseyside Co-ordination Committee consisting of members appointed by the municipal authorities of Liverpool, Birkenhead, Wallasey, Bebington, and Bootle, had instructed three experts to report on the question of the co-ordination of the Merseyside passenger transport undertakings. Their report had not yet been published, but the position would be carefully watched and any necessary steps would be taken to protect the interests of their undertaking. As he had pointed out before, such a scheme of co-ordination would be difficult to formulate as some of the Merseyside undertakings were operating at a heavy loss.

The year 1938 reflected only nine and a half months' working of the through service, and although an efficient service such as was now being run, naturally attracted the travelling public, it was impossible to forecast the ultimate results. The absence of a through train service to Liverpool from the Wirral Peninsula had resulted in development in that district being largely centred round the bus routes, and thus neglecting those areas adjacent to the railways. The electrification of the Wirral Section and the new through service to Liverpool had completely changed those adverse factors, and residential and recreation facilities were developing and would continue to develop along the whole route served by the electrified lines with their frequent train service.

The Chairman concluded with a tribute to the ability with which Mr. Varley and Mr. Blacklin had performed their new duties in a period vital to the company's progress.

The report and accounts were unanimously adopted.

The Trend of Signal Engineering

Abstract of presidential address delivered to the Institution of Railway Signal Engineers on February 22 by Mr. James Boot, Signal Engineer, General Railway Signal Co. Ltd.

The lever interlocking frame has lately tended to become an electrical device, depending more on the use of relays, the latest types having electric interlocking between levers, signal levers not track locked, and point levers without indication or check locks. Practically all the vital protection is given by relay circuits, and it would be possible, with some slight alteration to approach locking circuits, to dispense with interlocking between levers. It seems illogical to dispense with indication locking on point levers and yet retain the time-honoured method of locking between points. Surely if one set of points must precede another, it is useless to provide release locking between levers without requiring the points to be in correspondence with their levers, which is the purpose of indication locking. If it is contended that safety is ensured by signal detection, there appears no necessity for release locking between point levers. In the case of locking between points and signals, if point levers have no indication locking, reliance must be placed entirely on relay operation. There appears to be some need for further thought on this subject.

Use of Relay Interlocking

The need for economical traffic operation has become one of the major interests of signal engineers and an enormous amount of work has been accomplished in recent years in connection with amalgamation of signal boxes. With power operated points and signals there is theoretically no limit to the distance over which control can be exercised. Such limit has usually been set by economic considerations. Much useful knowledge has, however, been gained from the

development of relay interlocking, particularly in the provision of what may be termed remote interlocking. Even in remote operation of points and signals from interlocking frames, advantage might be taken of this feature. Modern signal apparatus has admittedly attained a high degree of reliability and some of the methods in use today might be modified to afford equivalent protection at less cost, particularly when operating groups of points and signals at a distance, which in themselves provide small interlockings. In these cases the largest item of expense is often cabling, due to some extent to trying to adapt the same circuiting methods to all functions, near or distant. It will doubtless be admitted that cabling is usually the weakest link in power operation, the longer the distance over which operation and indication have to be effected the greater being the liability to false operation. The minimising of the vulnerability of such long connections should receive the utmost attention.

It appears desirable that, as far as possible, long lengths of cable should not form part of the safety locking between the various functions; that is to say, cables should provide the means by which the operator can transmit his intention to them, the interlocking between them being accomplished locally by the most direct means. Then the information sent back to the operator, in the shape of signal, point, and track indications, will not in most cases be vital and could be given by cables and apparatus of a less robust character.

The Question of Cost

The opinion has been expressed recently that the present economic situa-

tion does not warrant any great extension of power signalling because of its high cost, but if one were to replace mechanical signalling with power, like for like, there would be no great difference in expenditure. What adds to the cost of power signalling are items for betterment, such as track circuits, indications, describers, and so on. An eminent member of this institution once stated that he could provide power signalling at about the equivalent cost of mechanical signalling. No doubt this could have been—and still could be—done, on the basis of like for like. But some persons, especially traffic officers, seem to think that if power signalling is used it must be hedged round with all the safeguards ever invented. For them there is no intermediate position. They will be content with a mechanical frame, block working, and a few signal repeaters; but if it is suggested to replace this with a power frame, then track circuits, approach and sectional route locking must be provided, together with illuminated diagrams and hosts of indications behind the levers.

There are, however, a number of the older power installations not fully protected by track circuits or other modern electrical safeguards which, while admittedly not up to our modern standards, have done useful service and work well within the limits of their capacity, so that if a full power installation cannot be justified, it may still be an economic proposition to use power but omit a number of accessories. If it is safe in a mechanical plant for the signalman to be able to set points with no other protection than mechanical locking and personal observation of traffic conditions, it is surely just as safe to allow him to work under similar conditions in a power scheme. It is not contended that track circuits and other adjuncts are not advisable, but, when provided, they should be considered as, and charged to, betterment. If a mechanical signal box worked safely and efficiently without electrical protection, why provide the latter when

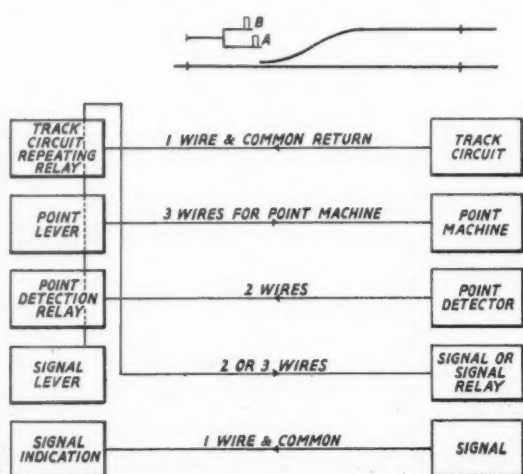


Fig. 1

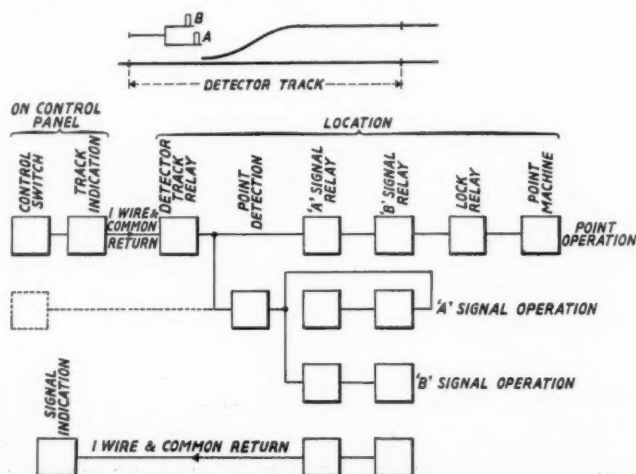


Fig. 2

converting to power operation, unless to give greater safety or facilities? If the former, electrical protection ought to have been provided under mechanical operation. If, however, the addition of such adjuncts gives greater facilities, their cost should not be placed against the renewal fund.

Reduction of Cabling

To show that a study of relay interlocking might help to economise in the operation of remote functions, the accompanying diagrams are reproduced. Fig. 1 shows the conventional method of operation, requiring from 10 to 12 wires, while Fig. 2 shows a suggested method, requiring only three to four wires. The amount of apparatus being approximately the same in either case, what has been sacrificed?

Protection to traffic is the same in both cases, but the signalman has fewer indications in Fig. 2. The constant indications in Fig. 1 would be track circuit, points, and signals; in Fig. 2, track circuit and signals "off." Intermittent indication can be provided to show if the points have started and completed their movement. With seven wires there is constant indication whether the points are lying normal or reverse, and when the signal is at "stop." All other indications are equal, with the exception perhaps that in Fig. 2 independent movement of points is not possible, although it could be with one more wire. It does not seem essential to know in which position points lie until a train is to be passed over them or some other interrelated route. The detection will then give the necessary protection, the clearing of the appropriate signal informing the signalman that the proper route has been set up and signalled.

In Fig. 2 the track circuit indication comes over the wires used for controlling points and signals, "track clear" being given by keeping the control circuit closed at the track relay contacts, an example of economising in wires. With the control lever or key normal, the control wire and return form a loop indicating "track clear"; with the lever reversed and the track circuit still clear, the points can be operated and the signal then cleared. If the track circuit is occupied the points and signals must, of course, remain inoperable. One pair of wires can therefore be used sequentially to indicate track occupancy, operate points, and clear signals, subject to electrical safeguards at the remote point; the wires between there and the control form no part of the interlocking, so that even if they become broken, or short-circuited, no unsafe working can ensue. Economies should not be made by cheapening apparatus or cables, but by intelligent combination of the minimum number of devices to give the service required.

The High-Speed Train ; A.T.C.

At present no satisfactory universal solution seems to have been found to

meet the problem of high-speed trains, made more difficult by the fact that although speeds are increasing, braking effort remains the same, resulting in longer braking distances. Various expedients are at present in use to deal with it, the most usual being to ensure two or more block sections ahead of the train being clear, which means working to regulations, as it would be impossible, or at least very expensive, to provide locking dependent upon train speed or braking capacity. There appear to be only one or two other ways of dealing with this situation on a more or less permanent basis. In any scheme, however, high-intensity lamps should be provided in distant signals in mechanical areas, additional aspects being possibly added to signals in colour-light areas. This might be satisfactory in clear weather, but in bad weather there would be no approach view of a signal and train speeds would have to be reduced to allow for normal braking distances. High-speed trains might, of course, be fitted with special braking equipment, rendering any large redistribution of signals unnecessary. An alternative would be to install some A.T.C. system to give advance information of the signal ahead. This, however, would be but a stopgap; it is generally admitted that the continuous type of control is, apart from expense, the most desirable. In saying this no disparagement of intermittent systems is intended. The 1927 A.T.C. Committee expressed itself satisfied that, with over twenty years' experience with such a system on the Great Western Railway, "this type of ramp contact control can be properly maintained, and is sufficiently reliable, even under snow and ice conditions, for general adoption."

A non-contact system might be more desirable, on account of its alleged better operation in snow or frost, but all such systems, when intermittent, depend upon some magnetic or inductive impulse being transmitted to the locomotive both for "caution" and "clear" indications, which is not in accordance with the established signalling practice that absence of energy shall give a restrictive signal. The Great Western system gives the caution signal by opening a retaining circuit, providing positive control, essential if the position of the fixed signal is to be repeated on the locomotive. Nevertheless intermittent control must, of necessity, fall short of a continuous system.

The difficulty with the wayside signal is not in the signal itself, but whether the indication it displays can be transmitted to the driver. This depends upon his ability to see and read the signal correctly. Visibility is thus a factor, and one over which the engine-man has no control. On multiple tracks there is the additional problem of picking out the signal applying to that on which one is travelling. Memory, too, must always be a vital factor. A driver of a long-distance train will perhaps

pass hundreds of signals *en route*, at the rate of one a minute, or less. Drivers presumably develop some faculty for retaining the last signal seen and discarding the one before that, not carrying over the last clear indication preceding the one just received. In spite of these feats of memory our accident record is second to none and often under atmospheric conditions as bad as can be found.

Looking to the Future

Although all signal engineers would be happy to see some help and relief given to drivers, it would be a mistake to deal piecemeal with this urgent problem. The repeating of distant signals by intermittent devices has indeed met with success, but the gradual extension of multi-aspect signalling may lead to complications and possible ambiguity in the meaning of the intermittent cab signal, especially if, in consequence of high-speed running, a fifth aspect has to be given. Some consider that the best indication that can be given with an intermittent system is an approach, or location, warning that a signal is about to be passed. This would appear to be a most consistent arrangement, applicable to both semaphore and multi-aspect signalling. Many drivers say that their greatest difficulty in fog is to find the signal; some location mark would be of the greatest assistance.

Continuous train control appears out of the question at present, on the score of expense, but before any complete system of the intermittent type is installed, consideration should be given to some plan of an evolutionary character, providing intermittent indications at the outset and, eventually a continuous signal. It is not beyond the inventive capacity of signal engineers to produce such a scheme. Track equipment is the expensive part in continuous train control; the standard locomotive equipment could be modified to give an intermittent approach warning, and locomotives so equipped could be used for continuous control when the major portions of the lines had been track circuited, being able to respond to either intermittent or continuous working. This would be moving in the right direction, with a definite aim in view.

Improving the Track Circuit

Although track circuits have been in practical use for many years, can one be satisfied with the progress made, the same factors being present as were encountered originally? Even in early years it was realised that, in order to obtain the best train shunts, battery current to rails should be as near as possible constant, obtained to some extent by using batteries of high internal resistance. It was also known that the relay resistance should approximately equal the mean ballast resistance, pick-up and drop-away values being as close together as possible. Alternating current track circuits have since been developed, more

or less as a necessity, to allow of operation on electrified tracks. Various modifications have been suggested and tried, either to increase relay sensitivity or, as far as possible, rail voltage, to break down rail to tyre resistance. There are two main features militating against satisfactory operation, *viz.*, variable ballast resistance and high rail to wheel resistance, and were it not for low ballast resistance one could raise the rail voltage to

break down from rail to wheel. Does this give a clue to a satisfactory solution? Given a circuit in which relay coil current was unaffected by ballast resistance variations, rail voltage could be raised, with the knowledge that the train shunt would remain unaffected with high ballast resistance.

Much progress has been made in the art of signalling, but many problems remain to engage the attention of younger members of the profession.

Most of the big steps in the art have been made by men fully occupied in business. One must not simply follow tradition slavishly, but give some thought to each problem encountered, being clear as to the necessity for each step. By going right back to first principles one can arrive at a solution which would possibly escape one when only consulting precedents. The simplest solution of a problem is often the most valuable.

Progress of the "Square Deal"

Text of the letters confirming and amplifying the road-rail agreement which was arrived at on February 6 last

At a meeting of the committee of the Transport Advisory Council on February 17, the road haulage representative submitted copies of letters exchanged between the railways and the Liaison Committee on Road Transport Rates for the purpose of clarifying and amplifying the agreement between the two industries signed on February 6 (reported in our issue of February 10). The correspondence consists of a letter dated February 16 from Lord Stamp on behalf of the railways to Mr. W. Edwards, Chairman of the liaison committee, and of a letter of confirmation from Mr. Edwards of the same date. Lord Stamp's letter read as follows:—

Dear Mr. Edwards,—Arising out of the joint memorandum to the Transport Advisory Council by the four main-line railway companies and the Liaison Committee on Road Transport Rates, it is agreed and understood between the two industries that, in order to achieve that co-ordination to which the joint memorandum is directed, neither the railway companies on the one hand nor the road haulage industry on the other will embark upon a policy of cut-throat competition calculated to defeat that co-ordination; and further, that both industries will co-operate in an endeavour to establish co-ordinated rate structures and to this end will take, in consultation and by collaboration with each other, such steps as they may consider necessary or desirable for the establishment of such agreements as are contemplated by the joint memorandum.

Furthermore, every effort will be made by both industries to reach fair and reasonable rates agreements with due regard for each other's interests as well as for the interests of the trading public and other carriers.

The railways take note of the view expressed by the road haulage industry as to the possibility of their seeking at a future date some revision of the provisions of Part I of the Road and Rail Traffic Act, 1933. They are prepared, at a date prior to the termination of the two-year period referred to in Clause 11 of the Joint Memorandum, to enter into discussions of such proposals in a sympathetic spirit on the

clear understanding that any modification put forward shall apply equally to all forms of transport.

It is understood between the two industries that every one of the proposals in the joint memorandum and this letter forms an integral part of the agreement come to between the two industries and that consequently if these proposals be not carried out substantially in their entirety then the parties must be considered to be at large.

Yours faithfully,

On behalf of the
Railway Companies,
Stamp

The reply from Mr. Edwards confirmed Lord Stamp's letter in the following terms:—

Dear Lord Stamp,—I am in receipt of your letter of the 16th instant in relation to the joint memorandum to the Transport Advisory Council by the four main-line railway companies and the Liaison Committee on Road Transport Rates, which I have pleasure in confirming on behalf of the liaison committee.

Yours faithfully,

On behalf of the Liaison
Committee on Road
Transport Rates,
Wm. Edwards (Chairman)

Having heard the above submissions, the committee again adjourned to give the railways more time in which to complete their negotiations with trading and transport interests. The position now is that joint memoranda have also been agreed with the canal interests, and with the British Iron and Steel Federation. A joint memorandum with the coastwise shipping interests is on the point of completion and, a further endeavour is being made this week to reach agreement with the Traders' Co-ordinating Committee. Discussions are still proceeding with the agricultural interests, but so far the outcome is somewhat doubtful.

British Road Federation's Proposals

The British Road Federation sent a statement to the Transport Advisory Council on February 21 commending the terms of the joint road-rail memo-

randum and the above-mentioned letters. It emphasised, however, the view expressed in a memorandum which it submitted to the council on January 9 that the relaxation of the law governing the grant of "A" and "B" licences is a matter of urgent importance. While, therefore, the federation expresses appreciation of the "gentleman's agreement" by which the railways agree for a period of two years to refrain from using a large part of their powers to object to the issue of road licences, and the offer to discuss in a sympathetic spirit amendments of the licensing law prior to the expiration of that agreement, it feels that the Government should amend the law on the lines proposed by the federation as nearly as possible simultaneously with the grant of any increased freedom to the railways. The federation has therefore submitted to the council proposals for legislative changes, the chief of which are that only road operators may object to the issue of road licences; that the holders of "A" or "B" licences shall be entitled to their renewal, subject to safeguards; and that the onus of proof of the existence of suitable transport facilities be shifted from the applicant to the objector.

WORKING AGREEMENT BETWEEN DIESEL ENGINE MANUFACTURERS.—The Brush Electrical Engineering Co. Ltd., Loughborough, and Blackstone & Co. Ltd., Stamford, have entered into an agreement whereby the Brush company's diesel engines will be marketed exclusively by the Stamford firm as Blackstone-Brush. With its own range of engines, Blackstone & Co. Ltd., control of which R. A. Lister & Co. Ltd., Dursley, acquired three years ago, will now be able to quote for diesel engines from 3 h.p. to 2,000 h.p. Sir Ronald Matthews, Chairman of the Brush Electrical Engineering Co. Ltd., stated on February 16 that his company's works had been re-equipped for manufacturing Brush horizontal engines on the most modern basis. The new selling agreement should increase the sale of Brush engines in world markets. Mr. Percy Lister, Chairman of Blackstone & Co. Ltd., and R. A. Lister & Co. Ltd., has said that the Blackstone-Brush agreement, which will interest all users of cheap power, will allow of still greater efficiency in the British industrial effort to meet foreign competition.

QUESTIONS IN PARLIAMENT

British Railway Policy

Lord Monckswell in the House of Lords, on February 15, called attention to alleged defects in the policy pursued by British railways in the past and asked His Majesty's Government for an assurance that in granting, or contemplating the grant, of any new powers to the railways they were at the same time giving attention to the importance of ensuring that the mistakes of the past were not repeated.

The noble Lord, who moved for papers, said the finances of the British railways were in a serious condition. Exactly what ought to be done was not clear, but it was important to ensure that remedies were not applied that were worse than the disease. He went on to summarise the history of railways, and said that by 1850 the position of the railways was secure. There had by that time grown up a large professional class of railway officials who saw that all they needed to secure for themselves a quiet life was to agree with one another to do as little as possible in the way of technical development or improved service. Such improvements as took place were usually made in spite of the opposition of the railway officials. The adoption of block signals and continuous brakes were classic instances.

One result of the inertia and lack of foresight of that period was that a system of working the goods and mineral traffic was allowed to grow up which had led to some of the worst troubles from which the railways were suffering today. Vehicles were not big enough, and colliery sidings and terminals in industrial works were not adapted to dealing with big vehicles. The prime advantage of railways—that of being able to carry very large loads with a small amount of manpower—was not utilised as it should have been.

He congratulated the L.N.E.R. upon the improvements that had been effected in the last ten years. It was no longer a case of 60 m.p.h. to the principal towns. Third class sleeping carriages were found where required, and the position in regard to punctuality had also improved. Goods traffic methods had changed for the better by getting the trains more quickly over the line by means of improved signalling and more powerful and economical engines. The permanent way was better, more cheaply, and much less laboriously maintained by modern methods of packing. Goods were largely despatched in containers or expeditiously distributed by road motors from railhead. If improvements on the other three groups had not so far reached the high standard attained by the L.N.E.R., similar developments on a smaller scale were perceptible. One very unsatisfactory feature of recent railway activity was

the stunt of electrification on surface railways. He meant a spectacular move that involved the spending of a great deal of money and was useless when completed. The usefulness of electrification was confined to underground lines. It was enormously expensive to instal, and an electric motor cost roughly twice the price of a steam locomotive of equal power. Owing to difficulties of springing, the heavy motors of electric engines knocked the road to pieces, and the vibration thus set up caused acute discomfort to passengers. Neither was there any reason to suppose that electrification paid. The Southern Railway always flatly refused to give particulars of the finance of electrification. They merely went on repeating that the traffic had largely increased on the electrified systems. Of course it had. The number of residents in the suburban districts served by the Southern Railway had largely increased and traffic must have grown whatever system of traction was used. The railway's claim was a mere subterfuge to conceal awkward facts. The proposed electrification of the Great Western Railway main line west of Taunton would be no advantage for the shareholders or the public. Who was it that benefited? That was a most interesting question, and one that might very properly engage the attention of the Government. It was the Government who, in their intense anxiety to snatch at any colourable excuse for spending, agreed to lend the railways millions of taxpayers' money below the economic rate of interest, and took no proper steps to ensure that the money should be usefully employed.

When the railways asked to be relieved from their present obligations the principal reason which they alleged for the request was the pressure of the competition of road vehicles. Railways were specially suited for moving very large loads. They were never likely to lose three immense sources of traffic; first, heavy goods and mineral traffic; secondly, intensive passenger traffic into and round the big towns; and thirdly, long distance passenger traffic. The traffic they had lost was that where their immense carrying power was least felt; that was to say, for which they were least suited. The trouble was that railway goods rates had never been fixed upon an economic basis—the policy of favouring one kind of traffic against another had broken down.

It was noticeable that the railways were extremely reticent about what they proposed to do if granted the new powers for which they asked. The immediate cause of all the trouble was that the wages of the railway servants had been forced up by political action

to a point too high to allow the railway shareholders to receive a suitable return on their holdings. The capitalisation of the railways could not seriously be regarded as too high because it was much less than the sum that would be required to replace the railways. Subsidies always tended to prevent proper provision from being made for the future. The railway servants were receiving not only that proportion of the railway receipts which they earned, but also a supplement, which was earned by the thrift of the shareholders, but taken from the shareholders and handed over to the railway servants. He criticised also the weakness of the boards of directors which were hardly more than a body for registering the decrees of their professional advisers. One of their duties should be to organise the shareholders effectively for such action as might be necessary, and another was to ensure that the railway managers and officials should at least continue the activity which they had recently displayed.

Earl Beauchamp said that the railways had been fettered by a great many rules, regulations, and restrictions which had now entirely outlived their usefulness. At the same time it would be dangerous to sweep all those rules away and give the railway companies an entirely free hand.

Lord Balfour of Burleigh said that the railway companies had no desire to exploit the community and no one was more alive to the need for reasonable charges than were the railway companies. As to the system of charges, it was imposed upon the railway companies by Act of Parliament, and was one of the troubles they were now dealing with. For dense suburban traffic electrification was the only possible system by which to get the maximum traffic. They could run a very much larger number of trains an hour by electrification than they could when steam was the motive power. The Southern Railway had electrified something like between 650 and 700 route miles. That system was peculiarly suitable for the Southern Railway, which represented 12 per cent. of the railway business of this country. Of that 12 per cent. only one per cent. was, he believed, merchandise. Therefore the Southern Railway was in an entirely different category from the other three main-line railways. Practically speaking there had been no main line railway electrification in this country yet. The electrification of the main line between Manchester and Sheffield on the London and North Eastern Railway was being undertaken because for certain technical reasons it would seem to offer a very favourable field.

The railways would much prefer to handle trains made up of large wagons, and they did all they could to encourage traders to send their goods in large quantities. The average load for general merchandise had decreased

since 1929 from 2.94 tons to 2.88 tons in 1937, in spite of all the efforts which the railways had made by quoting lower rates for large quantities and in other ways. The British railways, so far as he knew, were the only railways in Europe, possibly in the world, which had not got their fingers in the taxpayers' pockets. The engine mileage on the British railways in 1927 was practically the same as in 1937, but the working expenses were down in that period by 15 per cent. That could not have been done without efficiency. Road competition had the tremendous advantage of "door to door," and one of the great difficulties under which the railways laboured was the fact that their stations were so often a mile or so from the village or town that they had to serve.

The Earl of Erne (Lord in Waiting) reminded the House that the railways were not a Government service, and that subject to statutory regulation in certain respects, notably safety and charges, railway policy was a matter for the railway directors, who were in turn, responsible to their shareholders. Lord Monkswell's statement that the Government agreed to lend the railways millions of the taxpayers' money below an economic rate of interest and took no proper steps to ensure that the money should be usefully employed, was not strictly accurate. All that the Government did was to guarantee the securities as to principal and interest. By that means the companies were able to undertake works which they could not otherwise have done, and large numbers of men obtained work in consequence. The question of classification was being very closely examined by the Transport Advisory Council. With regard to wages, he could not see what better form of machinery for negotiation could be devised, or in what way the interests of the shareholders could be more adequately safeguarded.

As regarded the future, the whole matter was closely bound up with the present claim of the railways for some relaxation of their conditions; the Transport Advisory Council would in due course report to the Minister, and the Government would have to decide what action, if any, to take. The Government would give very full consideration to the effect any change might have on all interests concerned. Any relaxation of the present statutory control of railway charges would require legislation.

Lord Strabolgi said that British railways were as efficient as any in the world, and were very well run. But they were not a paying proposition, and they would have this continual trouble as long as they remained in the hands of private companies. In his opinion, the whole transport problem in this country could be solved only by a measure of national control.

The motion was, by leave, withdrawn.

Kenya & Uganda Railway

Mr. R. Morgan (Stourbridge—C.), on February 15, asked the Secretary of State for the Colonies what was the position with regard to the claim of £5,500,000 against Kenya and Uganda in respect of the original cost of construction of the Uganda railway; and whether the Government was agreeable to the cancellation of this claim; and, if so, under what conditions.

Mr. Malcolm MacDonald (Secretary of State for the Colonies): It has been decided to invite Parliament to agree to the remission, subject to one condition, of the claim for £5,500,000 in respect of the original cost of construction of the Kenya—Uganda Railway. The condition is that a sum of £500,000 should be transferred from the reserve funds of the railway to a supplementary sinking fund earmarked towards the redemption of the 1921 Kenya Loan.

Mr. Creech Jones (Shipley—Lab.): Will there be an opportunity of discussing this matter in the House?

Mr. MacDonald: It will have to be brought before the House in whatever is the appropriate form.

London Area Railway Electrification

Mr. B. Bull (Enfield—C.), on February 16, asked the Minister of Transport if he could now make any statement as to the proposed electrification of the Enfield branch line of the London & North Eastern Railway.

Dr. Leslie Burgin (Minister of Transport): I am informed by the railway company that, until further progress has been made with the extensive programme of improvements in the London Passenger Transport Area, it is impossible for the L.N.E.R. to contemplate further schemes of electrification.

Becontree - Bromley - Bow Road Railway Fares

Mr. J. Parker (Essex—Romford—Lab.), on February 16, asked the Minister of Transport whether he was aware that the ordinary single fare from Becontree to Bromley was 6d. and to Bow Road, a further half-mile, 9d., whereas persons booking to Bromley and getting out at Bow Road had only to pay 1½d. excess fare; and whether he could bring this anomaly which was reflected in all inclusive fares on the line passing Bow Road, to the attention of the relevant authorities with a view to its removal.

Dr. Leslie Burgin: I am enquiring into the matter and will communicate with the hon. member as soon as I am in a position to do so.

Railway Level Crossings

Mr. B. Bull (Enfield—C.), on February 16, asked the Minister of Transport, if he would state the amount of money which had been paid from the Road Fund in the last five years towards the cost of eliminating or avoiding level crossings, especially in the crowded industrial districts; how many

level crossings still remained in the county of Middlesex; and whether he could expedite their removal in the interests of smoother traffic working.

Dr. Burgin: Since April 1, 1934, grants totalling £1,147,555 have been made towards the cost of eliminating or avoiding 33 level crossings. There are 24 level crossings remaining in Middlesex, five being on classified roads. The County Council are aware that grants of 75 per cent. of the approved costs are available for the elimination of level crossings on roads of definite traffic value and I have no reason to suppose that they do not recognise the importance of the matter.

Lullingstone Aerodrome

Lieutenant - Commander Fletcher (Nuneaton—Lab.), on February 21, asked the Secretary of State for Air what had been the result of the deliberations arising out of the decision of the Southern Railway not to establish an aerodrome at Lullingstone.

Captain H. H. Balfour (Under Secretary of State for Air): As I informed my hon. friend the member for Stroud on February 1, negotiations are now in train for the purchase of the Lullingstone site by my department.

L.N.E.R. Dogs Regulation

Mr. H. Day (Southwark, Central—Lab.), on February 22, asked the Minister of Transport whether his attention had been drawn to a regulation, recently issued by the L.N.E.R., that passengers, notwithstanding that they were in possession of a recognised ticket for the transport of dogs, were not allowed to travel their animals by certain passenger trains, even in the guard's van; and whether he would enquire whether it was the intention of any other railway companies to introduce similar regulations.

Dr. Leslie Burgin: Although I have no jurisdiction in this matter I have communicated with the railway companies and will let the hon. member know the result.

Mr. Day: Can the Minister say whether this is the first time in nearly 100 years that such a ban has been introduced by the railway?

Dr. Burgin: Not at any rate from personal knowledge.

Road and Rail Transport Services

Mr. T. Kennedy (Kirkcaldy—Lab.), on February 22, asked the Minister of Transport if he had considered complaints regarding what were described as obsolete statutes, the provisions of which were seriously affecting the economic life of the railways in their competition with various forms of road transport; and if he could now say what action the Government proposed to take to unify the organisation of the road and rail transport services.

Dr. Leslie Burgin: Until I have received and considered the Report of the Transport Advisory Council upon the reference now before them I would pre-

fer not to make any statement on this subject.

Mr. Kennedy: When do you expect to receive the report?

Dr. Burgin: I hope it will not be delayed. The matter is obviously one of great public interest and I should wish to deal with it.

Nanking-Shanghai Railway

Mr. R. W. Porritt (Heywood and Radcliffe—C.), on February 22, asked the Prime Minister whether the Nanking-Shanghai Railway was still running, and, if so, whether foreigners were allowed to use it.

Mr. R. A. Butler (Under Secretary of State for Foreign Affairs): Yes, sir, but foreigners must obtain permits to travel on it.

Railway Level Crossings

Sir Gifford Fox (Henley—C.), on February 22, asked the Minister of Transport how many level crossings and toll bridges still existed on the trunk roads under his control; where these were situated; and when he anticipated they would be removed and freed, respectively.

Dr. Leslie Burgin (Minister of Transport): There are 82 railway level crossings on trunk roads and 30 colliery crossings. The elimination of these crossings will proceed concurrently with the improvement of the sections of road concerned. There are 3 toll bridges on trunk roads—Menai bridge, Conway bridge, and Selby Bridge. I have no proposal for freeing the Menai bridge which is at present under reconstruction; Selby bridge will cease to be on a trunk road upon the completion of the Selby by-pass which will provide an alternative route. Proposals in relation to Conway bridge are under active consideration.

L.N.E.R. Pullman Stock

Mr. C. C. Poole (Lichfield—Lab.), on February 22, asked the Minister of Transport if he was aware that the rolling stock on a number of the L.N.E.R. main-line expresses to and from the North was Pullman stock, for seats in which the public were called upon to pay heavy seat charges, and that much of this stock was 11 years old; and whether, in view of the fact that other main line companies provided up to date stock for which no supplementary charge was made, he would make suitable representations to the L.N.E.R. for the removal of this charge.

Dr. Leslie Burgin: The company informs me that on the main line express services to and from the north there are only three trains in each direction (two on weekdays and one on Sundays) composed exclusively of Pullman stock. These trains are additional to trains made up of the company's standard stock, of which there are alternative services. As the hon. member is no doubt aware, a supplementary charge is made for the use of Pullman cars on other lines also, to cover the cost of this special service.

I can see no justification for asking for the discontinuance of these charges.

Railway Interests in Ports

Rear-Admiral Beamish (Lewes—C.), on February 22, asked the Minister of Transport if he was aware that many small and large ports were controlled entirely by railway interests to the exclusion of coastal trade, road transport, and urgent local trade interests; and what steps he was taking to lead to a fair adjustment in the general national interests.

Dr. Leslie Burgin: I am not quite sure that I appreciate the point raised in my hon. and gallant friend's question, but if he will furnish me with particulars I will make enquiries.

Rear-Admiral Beamish: Is the Minister aware that on the East coast and on the South coast there are a number of ports which are now derelict in consequence of the railways having bought up the interests?

There was no reply.

Forth & Clyde Canal

Mr. T. Kennedy (Kirkcaldy—Lab.) on behalf of Mr. J. Westwood (Stirling and Falkirk—Lab.), on February 22, asked the Minister of Transport what action he proposed to take to encourage goods transport by canal, with special reference to the Forth & Clyde Canal and to avoid its complete destruction by the railway companies.

Dr. Leslie Burgin: The Forth & Clyde Canal is the property of the L.M.S.R. I am informed by the company that the condition of this canal is satisfactory throughout its entire length. My power to revise the authorised tolls on this canal is exercisable only upon application. A formal application concerning the tolls on petrol barges between Grangemouth and Glasgow on the Forth & Clyde Canal is now *sub judice*.

Mr. J. Davidson (Glasgow, Maryhill—Lab.): Would the Minister say whether transport on this canal has increased during the past few years or decreased?

Dr. Burgin: I could not without notice. I have not the figures with me, but I shall be happy to send the hon. member the information.

Forthcoming Meetings

- Feb. 24 (Fri.)—**London Midland & Scottish Railway Company** (Annual General), Friends' House, Euston Road, N.W.1, at 11.30 a.m.
- Feb. 28 (Tues.)—**London Midland & Scottish Railway** (Special General), Euston station, N.W.1, at noon
- Feb. 28 (Tues.)—**Manchester Ship Canal Company** (Ordinary General), Milton Hall, 244, Deansgate, Manchester, at 11 a.m.
- Feb. 28 (Tues.)—**Great Northern Railway Company [Ireland]** (Ordinary Annual General), Gresham Hotel, Dublin, at noon.
- March 3 (Fri.)—**London & North Eastern Railway Company** (Ordinary General), Wharfedale Rooms, Hotel Great Central, Marylebone, N.W.1, at 2 p.m., to be followed by Special (Wharfedale) Meeting.
- March 3 (Fri.)—**Great Southern Railways Company** (Ordinary General), Gresham Hotel, Dublin, at 2 p.m.

Forthcoming Events

- Feb. 27 (Mon.)—Institution of Civil Engineers (London Student), Great George Street, S.W.1, 6.30 p.m. Joint Meeting with Insts. of Electrical and Mechanical Engineers (Student). "The Engineering Aspects of the London Passenger Transport Board," by Messrs. H. Walker, W. Hill, and D. Lampert.
- Feb. 28 (Tues.)—Federation of Lecture and Debating Societies (N.E. Area), at Co-operative Hall, Railway Street, York, 7 p.m. "Training of Railway Staffs, with Special Reference to the London Midland and Scottish School of Transport," by Col. L. Manton, R.E.
- Institute of Transport (Birmingham Graduate), at Chamber of Commerce, 6.30 p.m. "Passenger Transport in the Midlands, Yesterday, Today, and Tomorrow," by Mr. H. Thorpe.
- Mar. 2 (Thurs.)—G.W.R. (London) Lecture and Debating Society, in General Meeting Room, Paddington Station, 5.45 p.m. "Road Transport Operation from the Engineer's Point of View," by Mr. A. Dent.
- Institute of Transport (Nottingham Graduate), at Guildhall, 7 p.m. "The Country Station Master," by Mr. T. Saunders.
- Institution of Civil Engineers (Southern), at University College, Southampton, 7.15 p.m. "The Storström Bridge," by Messrs. G. Maunsell and J. Pain.
- Southern Railway (London) Lecture and Debating Society, at Chapter House, St. Thomas' Street, S.E.1, 5.45 p.m. "American Permanent Way Practice," by Messrs. A. Chester and L. Rock.
- Mar. 3 (Fri.)—Institute of Transport (London), at Connaught Rooms, Great Queen Street, W.C.2, 7 for 7.30 p.m. Annual Dinner.



Sir Herbert Jackson medal of the L.M.S.R. (See editorial note on page 291)

L.N.E.R. Literary Society's Smoking Concert

Sir Ronald W. Matthews, Chairman, London & North Eastern Railway Company, presided at the forty-seventh annual smoking concert of the L.N.E.R. (King's Cross) Literary Society, which was held at the Queen's Hall, London, on Friday, February 17. There was a large attendance and an excellent programme was provided.

Mr. F. Warriner is the Chairman of the Concert Committee, other members being Messrs. B. Barker, C. C. Daniels, H. Ireland, F. C. Ley, W. Fox, P. J. Wright, R. H. Alcock, Hon. Secretary, and H. S. Brush, Asst. Secretary.

Those present included:—

Sir Ronald Matthews, Chairman; Lord Balfour of Burleigh, Mr. A. K. McCosh, directors; Mr. C. H. Newton, Divisional General Manager; Sir Nigel Gresley, Chief Mechanical Engineer; Messrs. G. Sutherland, Chief Accountant; C. J. Selway, Passenger Manager, Southern Area; R. J. M. Inglis, Engineer, Southern Area; O. H. Corble, Assistant to Chief General Manager; W. H. Johnson, Asst. Secretary; J. E. Ryan, Hotels Superintendent, Southern Area; F. Warriner, District Superintendent, King's Cross; G. Sutcliffe, District Superintendent, Cambridge; W. E. Green, District Superintendent, Leeds; F. Leigh, District Manager, Lincoln; O. C. Gatenby, Mineral Manager, Doncaster; E. Thompson, Mechanical Engineer, Doncaster; J. Lees, Asst. Superintendent, Western Section; W. M. Gracie, Asst. Goods Manager, Southern Area; C. K. Bird, Asst. Goods Manager, Southern Area; Percy Syder, London City Manager; A. G. Croxall, Asst. London City Manager; S. A. V. Gregory, London District Passenger Manager; H. M. Collings, District Goods Manager, King's Cross; J. F. Sparke, District Loco. Superintendent, King's Cross; E. W. Rostern, District Superintendent, Nottingham; H. S. Owen, District Goods Manager, Manchester; Mr. Donnington, District Mineral Agent.

Mr. Selway's Guests.—Messrs. E. J. Missenden, H. E. O. Wheeler, Southern Railway; G. H. Griffith, Pullman Car Co. Ltd.; E. Huskisson, H. H. Gardiner, Thos. Cook & Son, Ltd.; A. Winter Gray, Institute of Transport; V. P. Ceresole, Swiss Federal Railways; Shirley James, Pickfords Limited; W. M. Perts, Southern Railway; H. Seydel, German State Railway; H. G. Dring, Canadian Pacific Railway; T. E. Thomas, London Transport; H. J. Jewell, B. & N. Line; Tarleton Winchester, United States Lines; A. E. Williams, American Express Co. Inc.; F. W. Crews, Institute of Transport; H. Flack, Blue Star Line; A. Gough, Selfridge Tours Limited; A. Graham, S. C. Lewis, J. Cabourne, Pickfords Limited; T. E. Foulkes, Co-operative Wholesale Society Ltd.; D. A. R. Smart, American Express Co., Inc.; R. A. Roxberry, Pedder & Mylechreest Limited; J. R. Cheese, B. & N. Line; L. H. Mountford, Mountford Travel Service; V. J. Kernan, Cunard-White Star Line; R. F. Best, Orient Line; H. J. Snook, Great Western Railway; Birger Bergaust, Bennetts Travel Bureau; J. Boardman, J. W. Fox, H. W. Barnes, Thos. Cook & Son Ltd.; H. H. Gordon, M. K. Kendall Limited; E. J. Reynolds, London Teachers' Association; W. Elliott, Atlantic Transport Line; R. Lucraft, Sewell & Crowther Limited. E. I. Froshaug, Norwegian State Railways; T. C. Byron, L.M.S.R.

Mr. Sutherland's Guests.—Sir W. V. Wood, Vice-President, L.M.S.R.; Sir Ralph Cope, late Chief Accountant, Great Western Railway; Messrs. G. Morton, Chief Accountant, L.M.S.R.; R. G. Davidson, Joint Accountant, Southern Railway; A. Howie, Joint Accountant, Southern Railway; A. E. Moore, Audit Accountant, Southern Railway; L. C. Glenister, Asst. Accountant, L.N.E.R.; J. Proctor Smith, late Divisional Accountant, L.N.E.R.; H. Garcia, late Chief Inspector of Taxes, Inland Revenue, Somerset House; W. F. Atkins, late Chief Inspector of Taxes, Inland Revenue, Somerset House; C. E. R. Sherrington, Secretary, Railway Research Service; F. J. Orchin, W. Hind, J. Caldwell, Ministry of Transport representatives; J. A. Kay, Editor, THE RAILWAY GAZETTE; G. Reeves, Staff and General Assistant to Chief Accountant; E. E.

Painter, Secretary, Railway Clearing House; C. A. Everard Greene, British Tabulating Machine Co. Ltd. representative; W. Philip, Divisional Accountant, L.N.E.R.; C. S. Louch, late Comptroller and Accountant, L.P.T.B.

Mr. W. Y. Sandeman's Guests.—Mr. Campbell, Assistant to the Engineer, King's Cross; Mr. Barton, Assistant to the Engineer, King's Cross; Mr. Stratton, Assistant to the Engineer (Bridges), King's Cross; Mr. Wardley, Assistant to the Engineer (Parliamentary), King's Cross; Mr. Hall, Engineers' Department; Mr. C. F. Slade, District Engineer, King's Cross; Mr. A. J. Grinling, District Engineer, Peterboro; Mr. H. T. Bird, District Engineer, Boston; Mr. E. J. J. Swindells, District Engineer, Nottingham; Mr. J. B. Dawson, District Engineer, Sheffield; Mr. B. P. Fletcher, District Engineer, Stratford.

Mr. R. J. M. Inglis's Guests.—Mr. E. L. Hawkins, late Asst. Engineer (Maintenance), Southern Area, L.N.E.R.; Mr. S. L. Murgatroyd, late Per. Way Engineer, Southern Area, L.N.E.R.; Mr. J. Miller, late Engineer, North-Eastern Area, L.N.E.R.; Mr. W. K. Wallace, Chief Engineer, L.M.S.R.; Mr. T. P. Bennett, T. P. Bennett & Son, Architects; Mr. E. Boynton, Sir Wm. Arrol & Co. Ltd.; Mr. A. McTaggart, Balfour Beatty & Co. Ltd.; Mr. W. T. Halcrow, Messrs. C. Meik & Halcrow, Consulting Engineers; Mr. A. J. Lyddon, Deputy Chief Engineer, Ministry of Transport.

Sir Ronald Matthews, in a short speech in the interval, after thanking the concert committee and artists for a most enjoyable entertainment, said he extended a hearty welcome to their friends. He was glad to have this opportunity of thanking those who threw a bone of traffic to the railway! It was their

constant endeavour to provide an efficient service. If at any time they were not satisfied, instead of complaining in general terms, he hoped they would write and tell Mr. Newton exactly what had happened. In conclusion he said he felt that if the railways were placed on an equal footing with their competitors they could make their services still more efficient.

Mr. C. H. Newton, in thanking Sir Ronald Matthews for taking the chair at the concert, said they welcomed him not only as President-elect of the Literary Society, but as the recently appointed Chairman of the London & North Eastern Railway Company. He had taken over his duties at a time unparalleled in railway history. He believed the railway would achieve prosperity. Of one thing, however, he was convinced, which was that their new Chairman would give everyone, traders, staff, and shareholders, a square deal. He hoped he would be spared for many years to act as Chairman of their great company. The toast was enthusiastically received with musical honours.

The artistes included: The Kneller Hall Band (The Royal Military School of Music); Master Aubrey Fuller, Robert Easton, Bass; Rupert Hazel and Elsie Day, Entertainers; Murray Ashford and Edgar Sawyer, Entertainers; Spencer Shaw, Organist; Ernest Lush, Accompanist.

Southern Railway Sales League Awards

On Monday afternoon last at the Grosvenor Hotel, Victoria station, Mr. Gilbert S. Szlumper, G.B.E., General Manager, Southern Railway, presented the awards to the prize winners in the first year of the Southern Sales League. Mr. E. J. Missenden, O.B.E., Traffic Manager, who took the chair, opened with some words of welcome. He appreciated the presence of the company's officers who had come along to make the function really representative. Besides the General Manager, these gentlemen included:—

Mr. E. Gore-Browne (Deputy Chairman), Mr. W. J. Shorter (Assistant for Development of Traffic and Statistics, who acted as M.C.), Mr. J. B. Elliot (Assistant General Manager), Mr. R. M. T. Richards (Assistant Traffic Manager), Mr. H. E. O. Wheeler (Superintendent of Operation), Mr. W. M. Perts (Commercial Superintendent), Mr. R. H. Hacker (Continental Superintendent), Mr. A. E. Moore (Audit Accountant), Mr. J. H. Laundry (Assistant Audit Accountant), Mr. C. Grasmann (Public Relations and Advertising Officer), Mr. W. J. England (Assistant Superintendent of Operation), and Mr. W. J. Sawkins (Assistant Accountant).

Mr. Missenden praised Mr. Grasmann's work as Editor of *Southern Sales*, 250,000 copies of which had been issued to the staff in a year. He then explained in brief the working of the competition and how the prize-winners were selected. Each Divisional Superintendent sent to headquarters a list of the 25 best efforts at "selling Southern" among the staff in his area. At headquarters a small committee made the final decision. At home,

each member of this committee made his own list of what he thought were the best efforts sent in. When they compared their separate lists the members found that they all but tallied. Mr. Missenden said that the judging was made very fairly.

The Passenger and Goods Cups were won by Mr. J. E. Sharpe (London West Division), and Mr. E. E. Young (London West Freight Division) respectively; both winners responded suitably.

The five area cups went to:—
Mr. E. H. Wilkins (London Central Division).
Mr. O. T. Potts (London East Division).
Mr. W. O. Spurgeon (London West Division).
Mr. A. Hili (Southern Division).
Mr. S. E. Harding (Western Division).

Mr. Potts responded for the cup-winners.

There followed the presentation of 42 station shields, 31 cheques, and 18 complimentary awards, of which one went to a lady clerk. Messrs. J. Hobbs and W. R. Lake replied. In an excellent little speech, Mr. E. T. Corbyn, Stationmaster, Pevensey, moved a vote of thanks to Mr. Gilbert S. Szlumper and Mr. E. J. Missenden. Both these gentlemen responded with witty speeches, and Mr. E. Gore-Browne also spoke in humorous vein.

Mr. Missenden, who had worked hard to build up the Southern Sales League, then received tokens of appreciation from the General Manager and Mr. J. E. Sharpe.

The Southern Railway Orchestra played light music during the afternoon.

STAFF AND LABOUR MATTERS

Building Industry Supplementary Unemployment Insurance Scheme

In connection with the above scheme, the Minister of Labour has issued the following announcement:—

The Minister of Labour has appointed Mr. E. C. P. Lascelles, O.B.E., Barrister at Law, to hold an informal enquiry into the scheme entitled the Building Industry Supplementary Unemployment Insurance Scheme which has been submitted under Section 72 (2) (c) of the Unemployment Insurance Act, 1935, by the National Joint Council for the Building Industry in England and Wales. The first sitting will be held at 10.30 a.m. on Wednesday, March 8, 1939, in Metropole Buildings, Northumberland Avenue, London, W.C.2, for the purpose of determining the procedure to be followed at subsequent sittings. Persons desiring to attend should write to Mr. M. L. Rayner at the Ministry of Labour, Princes House, Kingsway, London, W.C.2, before Wednesday, March 1, indicating whether they propose to attend the first sitting and whether they wish to be notified of subsequent sittings.

In the proposed scheme the building industry is defined as follows:—

(1) For the purposes of the scheme the building industry shall consist of all undertakings which are wholly or mainly devoted to the carrying on in England or Wales of any one or more of the activities mentioned in sub-clause (2) of this clause, and any branch, department or other part of any undertaking not wholly or mainly so devoted which is itself wholly or mainly devoted to the carrying on in England or Wales of any one or more of such activities.

(2) The activities to be included in the building industry as defined for the purposes of the scheme are the construction, alteration, repair, maintenance, decoration, and demolition of buildings and the manufacture of fittings or other products commonly made by persons carrying on any of the aforesaid activities and used in any of the aforesaid activities.

The scheme is intended to apply to every male person who has attained the age of 16 years and is an insured contri-

butor under the Unemployment Insurance Act, 1935, and is employed for wages or other remuneration in the building industry in England or Wales in certain occupations which are specified. The proposed weekly rates of contributions are:—

	By the employed person	By the employer
Skilled workers 21 years of age and over	6d.	6d.
Other workers 21 years of age and over	4½d.	4½d.
Young men between the ages of 16 and 21	2½d.	2½d.

The proposed benefits are:—

Skilled workers, 21 years of age and over ..	9d. per hour.
Other classes, 21 years of age and over	7d. ..
Young men between the ages of 16 and 21 ..	4d. ..

G.W.R. Goods Manager's Staff Dinner

The annual dinner of the Great Western Railway Chief Goods Manager's office took place on February 17, at the Chiltern Court Restaurant, London, when Mr. A. Maynard (Chief Goods Manager) presided over a gathering of more than 280 past and present members of the staff and their friends.

Among those present were:—

Messrs. H. Adams-Clarke, Staff Asst. to the General Manager; P. Boyle, late Traffic and Marine Agent, Weymouth; M. A. Bulkeley, late Chief Conveyancing Asst. to the Solicitor; R. Carpmal, Chief Engineer; H. H. Cavendish-Fuller, Chief Medical Officer; F. C. A. Coventry, Superintendent of Road Transport; C. Furber, Mineral Traffic Manager; E. A. Glavzer, Staff and General Asst. to the Superintendent of the Line; H. E. Hedges, Assistant to General Manager; F. C. Hockridge, Asst. Surveyor and Estate Agent; W. H. Jarvis, Stationery Superintendent; D. R. Lamb, Editor, *Modern Transport*; F. W. Lampitt, Commercial Asst. to the Chief Goods Manager; J. F. Lean, late Principal Asst. to General Manager; G. Matthews, Principal Asst. to the Superintendent of the Line; F. H. D. Page, Signal and Telegraph Engineer; H. W. Payne, Principal Asst. to the Chief Goods Manager; H. J. Peacock, Divisional Superintendent, Cardiff; P. W. Pine, Common Law and Chancery Asst. to the Solicitor; F. R. Potter, Superintendent of the Line; A. S. Quartermaine, Deputy Chief Engineer; P. G. Robinson, Asst. Manager, Hotels and Refreshment Rooms; S. G. Rowe, Asst. Secretary; F. P. Sealey, Manager, G. W. Royal Hotel, Paddington; R. A. P. Setterfield, Manager, Hotels and Refreshment Rooms; F. W. Showers, Surveyor and Estate Agent; H. Wheeler, Asst. to General Manager; J. R. C. Williams, Stationmaster, Paddington; W. A. Willox, Associate Editor, *THE RAILWAY GAZETTE*.

Mr. Maynard, after thanking the members of his staff for their support and assistance during the past year, regretted that the result of their labours had not been more satisfactory. This, he said, was not due to any lack of effort on their part, as it had to be borne in mind that the railway machine like others, when running smoothly, required less attention than when it was operating below capacity. The adjustments necessary to meet changing conditions

meant much additional work which was not always visible to the lookers-on.

Mr. H. W. Payne (Principal Assistant to the Chief Goods Manager) proposed the toast of the visitors and retired members, to which Messrs. F. R. Potter (Superintendent of the Line) and C. K. Honeyball (late Mineral Traffic Manager's Office) responded in happy vein.

The excellent programme of entertainment which followed included items from the repertoire of the Chief Goods Manager's Office Glee Singers, whilst a very mystifying demonstration of "Thaumaturgy" was also very well received.

A vote of thanks to the Chief Goods Manager, ably proposed by Mr. E. R. Spencer (Staff Section), Chief Goods Manager's Office) was received with musical honours, and Mr. Maynard suitably responded.

Eastern Divisional Locomotive Dinner, Southern Railway

The fourteenth annual dinner of the Locomotive Running Department (Eastern Division), Southern Railway, took place on February 15 at the Strand Palace Hotel, London, under the Chairmanship of Mr. D. Sheppy, Eastern Divisional Locomotive Running Superintendent. Among those present were:—

Messrs. W. Austin, T. Chrimes, A. Cobb, O. Cromwell, W. J. England, G. H. Hare-Dean, M. Hatchell, C. V. Hill, H. Holcroft, A. J. Hollins, H. Lelew, E. F. E. Livesey, A. B. MacLeod, W. Marsh, E. S. Moore, J. Moore, W. G. Pape, W. Powell, H. E. Roberts, E. A. Richards, E. M. Turnbull, H. E. O. Wheeler, and W. A. Willox.

Mr. A. Cobb, Locomotive Running Superintendent, in proposing the toast of the Locomotive Running Department, Eastern Division, referred to the difficult times of the crisis of last September for which the necessary plans had been prepared with complete calmness by all concerned. One of the notable events of the present

time was the reconstruction of Bricklayers Arms shed which, when completed, would give them a thoroughly up-to-date depot with a modern repair shop and a 70-ft. turntable, so that they could deal with any locomotive now running or likely to be placed in service. Another event of the past year was the very heavy summer traffic which presented the staff with difficult problems, all of which had been satisfactorily solved. In the exceptionally cold weather of the present winter again unexpected difficulties had been overcome. Mr. Cobb spoke of the good effect on engine cleanliness brought about by the painting of a number of locomotives in a lighter shade of green. Although this had brought with it its own problems of engine cleaning, the net effect had been that the Southern Railway's well-deserved reputation for clean locomotives had been more than maintained. That the outer appearance of the locomotives was a true reflection of the satisfactory condition of their general maintenance was exemplified by the fact that in the last year the number of miles run per mechanical failure had risen to the record figure of 131,264. Again, there had been a steady improvement in punctuality due to the efforts of the locomotive men in making up lost time.

Mr. D. Sheppy, responding to the toast, expressed particular thanks to Mr. E. A. Richards for the excellence of his A.R.P. instructions, which had enabled them to be prepared for any eventuality. He then made several symbolic presentations to members of the staff who had successfully overcome particular difficulties during the past year.

Mr. A. B. MacLeod proposed the vote of thanks to the committee who had organised the dinner, a toast which was received with enthusiasm. During the evening the Stewarts Lane Locomotive Concert Party provided a versatile programme.

NOTES AND NEWS

Buenos Aires Transport.—On February 16 all city transport in Buenos Aires, including underground railways, tramways, omnibuses, &c., was taken over by the newly-formed Transport Corporation.

The Railroad Credit Corporation.—The office of the Railroad Credit Corporation has been moved from the Transportation Building, Washington, D.C., to Maryland Trust Building, Baltimore, Maryland.

International Tourist Association Formed in Berlin.—An international tourist association has been formed in Berlin by the leading travel experts of Japan, Italy, and Germany; it was founded in the Reich Ministry of Propaganda, Berlin. Direktor Hans-Gert Winter of the Foreign Travel Department of the German State Railway has been elected President.

Canadian Pacific Earnings.—Gross earnings of the Canadian Pacific Railway for the month of December, 1938, amounted to \$11,948,000, a decrease of \$314,000 in comparison with December, 1937. Working expenses were \$8,602,000, or \$734,000 lower, leaving net earnings \$420,000 higher, at \$3,346,000. For the whole year 1938 gross earnings were \$142,259,000, a decrease of \$2,827,000, and the net earnings of \$20,753,000 for the year showed a fall of \$2,989,000.

French Trains to Irun.—It is understood, says a Reuters message, that from February 23 the morning and evening Paris-Lisbon expresses have run straight into Irun. These trains have been stopping halfway across the international bridge to detach the French electric locomotive and replace it by a steam engine, lent to the Spanish company by the French National Railways, to take it onwards into Irun station. It is also hoped that in the course of the next few weeks three ordinary trains will be running through from Irun to Paris and three more from Paris through Hendaye to Irun daily, according to a Reuters message from Hendaye.

Goods Traffic in Austria.—Austrian internal goods traffic increased considerably in the second half of 1938 and its share in the total German traffic is rising rapidly, says a Reuters message. In particular, there has been an increase in goods traffic with the rest of the Reich. From March (when Austria became part of the Reich) to December, calculated by the number of wagons loaded, imports from the old Reich were four times as high as for the same period the previous year. Exports to the old Reich were trebled and goods in transit doubled. In this connection it should be noted that traffic passing west of Woergl has been reckoned with traffic to Munich and is therefore not included in the figures for Austria.

Imports from abroad have also risen but there has been a fall of a third in exports to foreign countries, owing principally to the fact that traffic in raw materials is going more and more to the old Reich.

Collision at Glasgow, L.M.S.R.—On February 22, a local train from Kelvinbridge collided side on with a football special from Partick Central to Parkhead, which was standing near Stobcross station, Glasgow. It is reported that one passenger was killed, and about 40 injured.

Italian Honeymoon Concessions.—Hitherto applying only to second and third class passengers, concessions to honeymoon couples are now extended to first class, who are allowed a reduction of 70 per cent. on their return tickets between Italian frontier stations, or to (or from) ports or other destinations in that country with any number of breaks of journey. Couples from abroad are given this concession, provided they include Rome in their itineraries, and husbands and wives celebrating golden or silver weddings by a visit to Italy are also entitled to the same concession.

"Factors Contributing to Comfort in Travel."—A joint meeting of British scientific societies will be held on Friday, March 10, in the Great Hall of the Institution of Civil Engineers, Great George Street, S.W.1, for a general discussion of the subject of "Factors contributing to comfort in travel." The subject will be treated from three different aspects, as follows:—

Section 1.—By Road—Mr. Sidney E. Garcke (Executive Director of British Electric Traction Co. Ltd.).

Section 2.—By Rail—Rt. Hon. Lord Stamp (Chairman and President of Executive, L.M.S.R.).

Section 3.—By Air—Capt. E. W. Percival (Percival Aircraft Limited).

International Traffic Exhibition, Cologne, 1940.—A well produced and attractive brochure has recently been issued in English, dealing with the scope of the International Traffic Exhibition which is to be held at Cologne next year, under the presidency of Dr. Dorpmüller, the German Minister of Transport. The exhibition will be held in the permanent exhibition buildings at Cologne, which will be considerably extended for the occasion. The Reichsbahn exhibit will take the form of a large terminal station serving to house typical examples of modern rolling-stock and railway equipment. Other railway exhibits will include mountain railways, demonstrations of railway construction, maintenance, and working, and all the latest types of steam, electric, and motor vehicles, including their construction and maintenance. There will be an exhibit on the historical development of transport, and roads, inland navigation, harbours, and air transport will

be the subjects of comprehensive exhibits. Tourist traffic will also be dealt with.

Another Indian Judicial Inquiry.—Sir Thomas Stewart announced in the Indian Legislative Assembly on February 3 the Government's decision to appoint a judicial tribunal to inquire into the recent deliberate derailment on the East Indian Railway. It will be remembered that the corresponding Bihta judicial inquiry lasted about four months. Sir Thomas indignantly repudiated allegations of defective track, high speed, defects in the engine, the physical and mental condition of drivers, and callousness and neglect on the part of the railway.

London Transport Players.—From Tuesday until Saturday of this week the London Transport Players are presenting at the Scala Theatre "The Three Musketeers." The play itself is very musical and colourful, and the principal characters were on the whole well chosen. Particularly would we mention Miss Lilian Spracklan as Lady de Winter and Mr. Alec Pleasance as D'Artagnan. Mr. William McIsack made Planchet an amusing and likeable fellow, and Miss Adeline Sealy a charming Constance Bonacieux. The chorus and dancers worked hard and well deserve special commendation. The producer was Mr. Cyril Corker, and the London Transport orchestra was under the direction of Mrs. Clarice Sear. The next production of the London Transport Dramatic Club will be "Call it a Day" by Dodie Smith and will take place at the Cripplelegate Theatre on Friday and Saturday, May 12 and 13.

New Italian Cableways.—A new cableway north-east of Cortina d'Ampezzo, and running over the snowfields of Mount Faloria (6,500 ft.) has been opened, according to *The Times* of February 8. It is stated that with this line (which is named after the Prince of Piedmont) and that of the Matterhorn, Italy now has 24 cableways, Germany 17, and France 14. A message from the Milan correspondent of *The Times*, dated February 6, announced that the second section of the cableway on the south side of the Matterhorn had had a successful trial and was about to be opened for traffic. This section begins at Plan Maison (8,531 ft.) and runs to the Plateau Rosa (10,990 ft.). The total length of the two sections from Breuil to Plateau Rosa is four miles, during which the cars rise 4,430 ft. in 21 min. (See *THE RAILWAY GAZETTE* of September 17, 1937, page 503).

Institutions of Civil and Mechanical Engineers in America.—Preliminary arrangements have been made for the forthcoming visit to America of the Institutions of Civil and Mechanical Engineers. The parties will leave Liverpool on Saturday, August 26, and after disembarking at Boston on September 3, will proceed to New York. From September 4 to 8 members will visit the World Fair and various engineering works, and will take part in a

meeting at New York in which the American Societies of Civil Engineers and Mechanical Engineers and the Engineering Institute of Canada will participate. At the conclusion of this meeting visits will be paid to Washington (September 9 and 10), Niagara, Ottawa, and other places of engineering interest. The Civil Engineers party will return from Montreal on September 15, reaching Liverpool on September 22, but the Mechanical Engineers' programme is more extensive, with return from New York on September 23, reaching Liverpool on October 2.

Kamerun Railway Company Increases Share Capital.—According to a Reuters message from Berlin, the Kamerun Railway Company has increased its share capital by 420,000 marks to 1,800,000 marks. At the request of the German Minister of Economics, these new shares will be taken over by a banking group. At an extraordinary general meeting of the company held in Berlin on February 1, the president of the board of directors, Dr. Fischer, said that by this increase of capital following so closely upon

Herr Hitler's references to Germany's Colonial claims in his speech on the previous Monday, the company is manifesting the same determination to emphasise the importance of German Colonial activity. A sum of 200,000 marks of the new capital is to be used for improving the road in the Kameruns leading from the plantations to the railway lines.

Road Accidents.—The Ministry of Transport return for January of persons killed or injured in road accidents is as below. The figures in brackets are those for the corresponding period of 1938:—

		Killed	Injured
England—			
Pedestrians ...	247 (262)	4,955 (5,291)	
Others... ..	176 (202)	8,491 (8,057)	
Wales—			
Pedestrians ...	15 (8)	202 (208)	
Others... ..	10 (7)	343 (281)	
Scotland—			
Pedestrians ...	21 (22)	490 (659)	
Others... ..	17 (20)	660 (674)	
		486 (521)	15,141 (15,170)

The total fatalities for the preceding month were 682, compared with 594 in the corresponding period of 1937.

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 7th Week			Totals to Date		
	1939	1938	Inc. or Dec.	1939	1938	Inc. or Dec.
L.M.S.R. (6,831½ mls.)						
Passenger-train traffic...	393,000	394,000	— 1,000	2,626,000	2,693,000	— 67,000
Merchandise, &c. ...	456,000	489,000	— 33,000	2,911,000	3,356,000	— 445,000
Coal and coke ...	306,000	311,000	— 5,000	2,158,000	2,190,000	— 32,000
Goods-train traffic ...	762,000	800,000	— 38,000	5,069,000	5,546,000	— 477,000
Total receipts ...	1,155,000	1,194,000	— 39,000	7,695,000	8,239,000	— 544,000
L.N.E.R. (6,315 mls.)						
Passenger-train traffic...	259,000	253,000	+ 6,000	1,753,000	1,793,000	— 40,000
Merchandise, &c. ...	314,000	345,000	— 31,000	1,988,000	2,342,000	— 354,000
Coal and coke ...	270,000	285,000	— 15,000	1,858,000	1,983,000	— 125,000
Goods-train traffic ...	584,000	630,000	— 46,000	3,846,000	4,325,000	— 479,000
Total receipts ...	843,000	883,000	— 40,000	5,599,000	6,118,000	— 519,000
G.W.R. (3,737½ mls.)						
Passenger-train traffic...	161,000	162,000	— 1,000	1,121,000	1,134,000	— 13,000
Merchandise, &c. ...	191,000	196,000	— 5,000	1,241,000	1,371,000	— 130,000
Coal and coke ...	116,000	128,000	— 12,000	812,000	908,000	— 96,000
Goods-train traffic ...	307,000	324,000	— 17,000	2,053,000	2,279,000	— 226,000
Total receipts ...	468,000	486,000	— 18,000	3,174,000	3,413,000	— 239,000
S.R. (2,140 mls.)						
Passenger-train traffic...	260,000	254,000	+ 6,000	1,807,000	1,814,000	— 7,000
Merchandise, &c. ...	56,500	60,000	— 3,500	372,000	409,000	— 37,000
Coal and coke ...	37,500	39,000	— 1,500	262,000	268,000	— 6,000
Goods-train traffic ...	94,000	99,000	— 5,000	634,000	677,000	— 43,000
Total receipts ...	354,000	353,000	+ 1,000	2,441,000	2,491,000	— 50,000
Liverpool Overhead ...	1,300	1,276	+ 24	9,604	9,554	+ 50
Mersey (4½ mls.) ...	4,412	4,199	+ 213	31,535	30,905	+ 630
*London Passenger Transport Board ...	557,800	537,400	+ 20,400	19,269,100	19,067,900	+ 201,200
IRELAND.						
Belfast & C.D. pass. (80 mls.)	1,613	1,604	+ 9	11,770	11,636	+ 134
" " goods	474	472	+ 2	2,885	2,912	— 27
" " total	2,087	2,076	+ 11	14,655	14,548	+ 107
Great Northern pass. (543 mls.)	7,800	8,150	— 350	54,950	56,250	— 1,300
" " goods	9,500	8,450	+ 1,050	63,000	57,250	+ 5,750
" " total	17,300	16,600	+ 700	117,950	113,500	+ 4,450
Great Southern pass. (2,076 mls.)	26,620	26,698	— 78	191,422	193,137	— 1,715
" " goods	40,553	38,605	+ 1,948	278,637	292,365	— 13,728
" " total	67,173	65,303	+ 1,870	470,059	485,502	— 15,443

* 34th week (before pooling)

British and Irish Railway Stocks and Shares

Stocks	Highest 1938	Lowest 1938	Prices	
			Feb. 22, 1939	Rise/Fall
G.W.R.				
Cons. Ord. ...	65¼	25¼	26½*	+2
5% Con. Prefce....	118¼	74	73*	—1½
5% Red.Pref.(1930)	111¼	90	83½*	—1
4% Deb. ...	111	97½	98½	—
4½% Deb....	112½	100½	101	—
4½% Deb....	118½	104	106	—
5% Deb. ...	131½	119	115½	—
2½% Deb....	69¼	60	61½	—2
5% Rt. Charge ...	129	114	106	—2
5% Cons. Guar. ...	128½	103	100*	—2
L.M.S.R.				
Ord. ...	30½	11	11½	—
4% Prefce. (1923)	70¼	23	27	+2½
4% Prefce. ...	82¼	43¼	48½*	+2
5% Red.Pref.(1955)	103½	66	68½*	+2
4% Deb. ...	105½	85	88½*	—3
5% Red.Deb.(1952)	114¼	105	106	—
4% Guar. ...	102¼	77½	76½*	—1
L.N.E.R.				
5% Pref. Ord. ...	89½	31½	4	+¼
Def. Ord. ...	47½	21½	2½	+¼
4% First Prefce. ...	68¼	21	23	+½
4% Second Prefce. ...	27¼	8	9½	+½
5% Red.Pref.(1955)	97	40¼	42½	—
4% First Guar. ...	97½	66¼	63½	—
4% Second Guar. ...	91¼	52	49½	—
3% Deb. ...	79¼	60	64½	—1
4% Deb. ...	104½	77	84½	—1
5% Red.Deb.(1947)	110½	97	105½	—
4½% Sinking Fund Red. Deb.	108½	101	102	—
SOUTHERN				
Pref. Ord. ...	87	47½	60½*	—1
Def. Ord. ...	21¼	9¼	11¼	+¼
5% Pref. ...	115	83	88½*	—1
5% Red.Pref.(1964)	115½	98	94½*	—2
5% Guar. Prefce. (1957)	128½	106	106½*	—1
5% Red.Guar.Pref. (1957)	116	109½	106½*	—1
4% Deb. ...	109¼	95	97½	—
5% Deb. ...	129	117	113½	—
4% Red. Deb. 1962-67	107	101½	100	—
BELFAST & C.D.				
Ord. ...	4	3½	4	—
FORTH BRIDGE				
4% Deb. ...	102	99½	96½	—
4% Guar. ...	103¼	94½	95	—
G. NORTHERN (IRELAND)				
Ord. ...	51½	2½	3¼	+¼
G. SOUTHERN (IRELAND)				
Ord. ...	25½	8½	10	—
Prefce. ...	35	13	12	—
Guar. ...	70¼	30½	30	+1
Deb. ...	83	56	50	+2
L.P.T.B.				
4½% "A" ...	119½	107½	111½	—
5% "A" ...	130	117	119½	—
4½% "T.F.A." ...	108	98	103	—
5% "B" ...	122½	105	111½	—
"C" ...	84	68	70½*	+1
MERSEY				
Ord. ...	24¼	16½	21	—
4% Perp. Deb. ...	102½	94¼	94½	—
3% Perp. Deb. ...	77	69	66½	—
3% Perp. Prefce. ...	66½	57	55	—

* ex dividend

RAILWAY AND OTHER REPORTS

Bengal Dooars Railway Co. Ltd.

—The directors have declared an interim dividend of 3 per cent. on the ordinary stock, less income tax at 2s. 10d. in the £, on account of the year ending March 31, 1939, payable on March 29.

Metropolitan Railway Surplus Lands Co. Ltd.—Net receipts for the year 1938 amounted to £94,468, against £96,428 for 1937. A final dividend of 2½ per cent. is to be paid, again making 3½ per cent. for the year, and £1,255 is to be carried forward, against £2,519 brought in.

Thomas Tilling Limited.—Net profits for the year 1938 amounted to £512,195, compared with £456,398 for 1937. The directors announce a final dividend of 5 per cent., again making 10 per cent. for the year. The dividend is payable on £4,120,000 of ordinary capital, following the increase by the bonus share issue, involving the capitalisation of £824,000 from reserve a year ago.

London & North Eastern Railway Company.—The Secretary writes, February 17: At a meeting of the board today, the net revenue position of the company for 1938 was considered and the directors regret that they cannot propose the payment of any dividends on the preference and ordinary stocks of the company. A comparison of the receipts and expenditure of the year 1938, subject to final audit, with the year 1937 is given as under, namely:—

	1938	1937	Increase	Decrease
	£	£	£	£
Gross receipts from railway and ancillary businesses and net receipts of joint lines and miscellaneous	55,168,989	57,892,237		2,723,248
Expenditure of railway, ancillary businesses, and miscellaneous charges	48,515,822	47,784,795	731,027	
Net revenue	6,653,167	10,107,442		3,454,275
Brought forward from previous year	83,926	66,425	17,501	
Appropriation to contingency fund	—	Dr. 150,000	150,000	
	6,737,093	10,023,867		3,286,774
Interest on debenture stocks and other prior charges	4,220,487	4,222,274		1,787
Available for dividends	2,516,606	5,801,593		3,284,987
ALLOCATION:—				
4 per cent. First guaranteed stock	1,322,673	1,322,673	—	—
4 per cent. Second guaranteed stock	1,107,879	1,107,879	—	—
4 per cent. First preference stock	—	1,928,907		1,928,907
5 per cent. Redeemable preference stock (1955)	—	200,720		200,720
4 per cent. Second preference stock	—	1,157,488		1,157,488
	(1½ per cent.)			
Carried forward	86,054	83,926	2,128	
	2,516,606	5,801,593		3,284,987

The increase in expenditure of £731,000 is made up as follows:—

	£
Increase in salaries and wages due to restoration of the 1½ per cent. cut, and to other improved conditions granted to the staff as a result of the National Wages Board awards	+ 698,000
Increased cost of fuel and materials generally	+ 783,000
Increased volume of work in the maintenance of way and works	+ 285,000
	1,766,000
Deduct:—	
Economies achieved by schemes for improved working and the reduction in expenditure due to the decreased volume of traffic handled	1,035,000
Net increase in expenditure	£ 731,000

Forth Bridge Railway Company.

—For the year 1938 the balance credited to the working company, the L.N.E.R., was £1,626, as compared with £1,861 in 1937, and £1,983 in 1936. Traffic receipts from the L.N.E.R. were £177,000, against £178,000 for 1937, and £177,000 for 1936, and the net receipts, after deducting expenses of maintenance of works, general charges, rates, freight rebates fund—rate relief, insurance, &c., amounted to £129,900, against £130,032 in 1937 and £130,147 in 1936. Net revenue was £123,559, against £123,794. After providing for interest on 4 per cent. debenture stock (£28,933) and for a dividend of 4 per cent. (£93,000, the same as in the previous year) on the ordinary stock, there was a balance of £1,626, as above stated.

Oldham, Ashton-under-Lyne, and Guide Bridge Junction Railway Company.

—Gross receipts for the year 1938 were £24,927, against £22,945 in 1937, and expenditure was reduced by £1,651, to £28,410. Adding miscellaneous receipts and deducting miscellaneous charges, leaves a net revenue deficit of £2,348, compared with £5,822 in the previous year. The amount receivable under lease from the L.M.S.R. and L.N.E.R. was £4,248, against £7,722, leaving a balance available for dividend of £1,900, enabling a dividend of 4½ per cent. to be paid on the £40,000 share capital held by the public. Total passenger train receipts were £11,637, as compared with £8,962 in 1937. First-class receipts improved from £144 to

£207, third class and workmen from £7,974 to £9,998, and parcels and mails from £844 to £1,432. Goods train receipts, at £12,757, were £572 lower. The higher class merchandise receipts of £5,470 were up £225, but in Classes 1—6 there was a decrease from £2,256 to £1,573, and in coal from £5,690 to £5,507.

Beira Railway Co. Ltd.—Gross revenue for the year ended September 30, 1938, amounted to £1,036,142, an increase of £63,689 on 1936-37. Expenditure was £63,454 higher, at £842,733, so that the net earnings of £553,409 showed an advance of £415. After various charges, including reserve for taxation £170,000 (against £145,000), profit shows a decline of £13,711 at £264,454. A provision of £50,000 is made for rebuilding of properties, leaving a net profit of £214,454, an increase of £13,233 on 1936-37, when £50,000 was written off for expenses of issue of 5 per cent. first debenture stock. The dividend is unchanged at 2s. a share; £60,000, against £80,000, is placed to reserve, and £40,000, against £20,000 to dividend equalisation account leaving £39,658 to be carried forward against £30,203 brought in. The tonnage of general merchandise increased by 109,719 tons to 429,817 tons, and the copper export traffic of 284,219 tons showed little change, but drought caused a large decrease in the tonnage of maize available for export. Reductions in charges of 5 to 10 per cent. came into force on January 1, 1939.

George Turton, Platts & Co. Ltd.—An interim dividend is announced of 7½ per cent., less tax, comparing with 5 per cent. a year ago.

British Wagon Co. Ltd.—Net earnings of £93,298 were secured for 1938, against £95,034 for 1937, plus £28,867 (against £23,286) brought in. After charging debenture interest and directors' fees and making provision for N.D.C., there is an available balance of £62,071. The interim dividend of 8½ per cent. takes £7,854, and the final dividend of 11½ per cent., plus a bonus of 2½ per cent., which are recommended, will require £13,352. After transferring £10,000 to reserve, the amount to be carried forward will be £30,865.

English Electric Co. Ltd.—Trading profit for the year 1938 was £667,603, compared with £552,185 for 1937. A net profit of £501,709 was arrived at after charging debenture interest and directors' fees, providing £63,500, against £53,500 for depreciation, and transferring £50,000, against nil, to reserve for N.D.C. and income tax. The dividend for the year on the 6½ per cent. preference shares absorbed £73,830, leaving £427,879, which is equivalent to 37 per cent. gross on the ordinary capital. The ordinary dividend is maintained at 10 per cent., less tax, the sum of £200,000 is transferred to general reserve and £70,554 is applied to writing off the balance of expenses of the debenture issue, leaving £67,265 to be carried forward against £54,287 brought in.

OFFICIAL NOTICES

Crown Agents for the Colonies

COLONIAL GOVERNMENT APPOINTMENTS.

APPPLICATIONS from qualified candidates are invited for the following post:—

CHIEF BOILER INSPECTOR required by the Palestine Railway for two tours of 18-24 months' residential service with possible permanency. Salary £P430-£P15-£P550 a year plus expatriation allowance of £P50 a year and temporary and variable cost of living allowance at present fixed at the rate of £P48 a year. (£P equals £1.) Free passages. Candidates, preferably married, age 35-40, must have served an apprenticeship with a British Railway or Locomotive Firm, have held a post for a considerable period as an Inspector of Locomotive Boilers on a British Railway or with a Boiler Insurance Company, and should have a sound theoretical knowledge on mechanical subjects.

Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/8308.

Indian State Railways

APPPLICATIONS are invited for an appointment as Assistant Transportation Superintendent (Rolling Stock), Traction Branch, Great Indian Peninsula Railway.

Candidates should be under 35 years of age and must possess a Science or Engineering degree of a recognised University or equivalent educational qualifications. They must have had good practical, mechanical and electrical engineering workshop training and not less than five years' subsequent practical experience in a responsible post controlling the maintenance and operation of electric multiple unit trains and electric locomotives. A knowledge of general electric traction work is desirable.

Permanent appointment, subject to three years' probation. Pay:—Rupees 350 plus Rs. 150 Overseas Pay a calendar month (equivalent approximately to £450 p.a.), rising to Rs. 500 plus £30 Overseas Pay a calendar month (£810 p.a.). Provident fund and gratuity. First class passage to India and, if confirmed after probation, further passages for purposes of leave. (Overseas Pay and leave passages admissible only to appointee of non-Asiatic domicile.) Further particulars and forms of application

may be obtained, on application by postcard, from the High Commissioner for India, General Department, India House, Aldwych, London, W.C.2. Last date for receipt of applications 6th March, 1939.

Universal Directory of Railway Officials and Railway Year Book

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CONTRACTS AND TENDERS

The Gloucester Railway Carriage & Wagon Co. Ltd. has received an order from the Crown Agents for the Colonies for six bogie goods brake vans for service on the Federated Malay States Railways.

Locomotives for India

The Hunslet Engine Co. Ltd. has received an order from the Jaipur State Railway Administration for six metre-gauge superheated locomotives with six-wheeled tenders. These locomotives, which are to be supplied to the inspection of Messrs. Robert White & Partners, are to have coupled wheels, 4 ft. 9 in. dia., cylinders 16½ in. dia. by 22 in. stroke, and 160-lb. per sq. in. boiler pressure and will weigh in working order approximately 35 tons 17 cwt. The tenders are to have coal and water capacities of 5½ tons and 2,500 gal. respectively, and will weigh in working order approximately 28 tons.

Turner, Hoare & Co. Ltd. has received an order from the Stores Purchase Committee, Government of Mysore, Bangalore, for the supply of one Alba motor-driven 18-in. stroke crank shaping machine.

Wm. Jacks & Company has received an order from the Indian Stores Department for one 30-in. hydro-feed cold sawing machine, one electrically-driven boring machine, and one horizontal spindle surface grinding machine.

British Timken Limited has received an order from the Bombay, Baroda & Central India Railway Administration, to the inspection of Messrs. Rendel, Palmer & Tritton, for the supply of 10 sets of roller bearing locomotive axle-boxes, comprising leading bogie, trailing truck, and tender boxes.

Jones Burton & Company has received orders from the Stores Purchase Committee, Government of Mysore, Bangalore, for the supply of one heavy duty sliding-bed gap lathe, one 5-in. Majestic lathe, one double-belt planing machine,

one motor-driven radial drilling and tapping machine, one small combined drilling and milling machine, one double-ended punching and shearing machine, one lever release screwing machine, and one Union type grinding machine, at a total price of £2,575 10s. c.i.f. Madras.

W. & C. French Limited has received a contract from the L.N.E.R. for the construction of a subway beneath the platforms at King's Cross. A new parcels depot is at present under construction beside the station approach and the new subway will connect the depot with the platforms. Lifts will be constructed from the subway to the platforms and all parcels barrows, which at present obstruct the platforms, will use the new subway.

Turntables for L.M.S.R.

Ransomes & Rapier Limited has received orders from the L.M.S.R. for four locomotive turntables. These tables, of which three are to be 57-ft. dia., for service respectively at Toton, Evesham, and Peterborough, and one 55-ft. dia. for service at Liverpool Exchange, are to be of the Mundt non-balanced type and are to be equipped with vacuum and hand-turning gear.

The Royal Hungarian State Iron, Steel & Machine Works has received an order from the Bombay Baroda & Central India Railway for 100 axles and 180 tyres for locomotives, to be supplied to the inspection of Messrs. Rendel, Palmer & Tritton.

The Tata Iron & Steel Co. Ltd. has received an order from the Indian Stores Department for 150,000 mild steel tiebar flats, unpunched, for cast iron sleepers, at a total price of Rs. 2,46,094, f.o.r. Tatanagar.

Samuel Osborn (India) Limited and Vickers (India) Limited has each received orders from the Indian Stores Department for 400 16-ton broad-gauge axles, with 10-in. × 5-in. journals at a

price of Rs. 86,100, delivered free Lillooah.

The Crown Agents for the Colonies have recently placed the following orders:—

Thos. Firth & John Brown Limited: Steel tyres.

Horsehay Co. Ltd.: Steelwork.

Ericsson Telephones Limited: Telephone apparatus.

General Electric Co. Ltd.: Telephone materials.

J. Parkinson & Sons: Universal milling machine.

C. Roberts & Co. Ltd.: Wheels and axles.

Whitehead Iron & Steel Co. Ltd.: Mild steel round.

Barrow Haematite Steel Co. Ltd.: Rails.

Cargo Fleet Iron Co. Ltd.: Rails and fishplates.

Dorman, Long & Co. Ltd.: Rails, fishplates, and wire.

United Steel Cos. Ltd.: Rails and fishplates.

T. Turton & Sons Limited: Spring steel.

J. Baker & Bessemer Limited: Steel tyres.

Brown Bayley's Steel Works Limited: Steel tyres.

The Argentine State Railways Administration is calling for tenders for mild steel sheets, rods, and sections, to be presented in Argentina by March 14. Full details are obtainable from the Department of Overseas Trade, 35, Old Queen Street, S.W.1. (Ref. No. T.Y. 18581/39).

Tenders are invited by the Chief Controller of Stores, Indian Stores Department (Miscellaneous Section), New Delhi, receivable by March 20, for the supply of roofing materials with accessories for railway carriages for various railways during the period August 16, 1939, and August 15, 1940, on a rate contract basis.

The South African Railways & Harbours Administration is calling for tenders (Tender No. 2077) for the supply and delivery of quantities of wheels and axles and roller-bearing axle boxes. Tenders endorsed "Tender No. 2077. Wheels and Axles and Roller-bearing Axle Boxes," should be addressed to the Secretary to the Tender Board, South African Railways & Harbours Headquarter Offices, Johannesburg, to be received by March 13.

Railway Share Market

The general trend in the stock and share markets has shown improvement this week. Ordinary or equity shares rallied strongly on the assumption that the recent statements of the Chancellor of the Exchequer indicate that no heavy increase in taxation is to be made this year. On the other hand, the large amount of new borrowing necessitated by the expenditure on rearmament has led to an easier trend in Government stocks, and this tended to affect other securities of the fixed interest-bearing class.

Home railway securities were more active in sympathy with the surrounding market tendency, while sentiment was assisted by the better traffic figures for the past week and also by the statements at the Great Western meeting. There was a disposition to favour the securities of the L.M.S.R. and L.N.E.R. on the belief that the traffics of these two railways are likely to benefit most from the increased activity in the heavy industries and engineering trades expected to result from the accelerated rearmament programme. L.M.S.R. 4 per cent. preference was active

around $47\frac{1}{2}$, and more attention was given to the 5 per cent. redeemable preference, but the 1923 preference was rather dull at 26. The 4 per cent. guaranteed stock was reported to be firmer at 77, and the 4 per cent. debentures transferred around 89.

L.N.E.R. first and second guaranteed have been firmer since publication of the results, which show that their dividends were earned last year and have therefore not necessitated any withdrawal from reserve. The second guaranteed dividend was, however, only just earned. The first preference stock has been rather more active around $22\frac{1}{2}$ and the second preference was steadier at around 9, while the company's debentures were inclined to improve. Great Western ordinary was firmer at $26\frac{1}{2}$, partly owing to the statements at the meeting, more particularly the indication that further economies are expected to be made during the current year. Southern deferred and preferred moved in favour of holders, the former being $11\frac{1}{2}$ and the latter close on 61. London Transport "C" was better at $70\frac{1}{2}$.

There was again very little activity reported in foreign railway securities. Those of the Argentine companies had a steadier appearance in sympathy with the prevailing tendency of markets this week, but it is apparent that they are unlikely to attract much attention until such time as there is an upward trend in traffic receipts. Nevertheless, it is believed in many quarters that various of the debenture stocks are at unduly low levels. Central Argentine preference stocks were inclined to improve, but the ordinary stock was lower on balance, as was B.A. Gt. Southern ordinary, while elsewhere San Paulo moved against holders. Cordoba Central debentures again attracted a fair amount of attention. Moderate demand was reported for French railway sterling bonds and Nord rose to 103, while Orleans and Midi were both around $82\frac{1}{2}$. American railway shares fluctuated sharply. Canadian Pacific Railway stocks were however little changed, having remained under the influence of the decision as to a distribution on the preference stock.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1938-39	Week Ending	Traffics for Week		No. of Weeks	Aggregate Traffics to Date			Shares or Stock	Prices						
			Total this year	Inc. or Dec. compared with 1938		Totals		Increase or Decrease		Highest 1938	Lowest 1938	Feb. 22, 1939	Yield (See Note)			
						This Year	Last Year									
South & Central America	Antofagasta (Chili) & Bolivia	834	19.2.39	£ 14,110	—	£ 6,260	7	88,630	124,110	—	£ 35,480	Ord. Stk.	14	71½	7	Nil
	Argentine North Eastern ..	753	18.2.39	7,748	—	707	34	329,292	317,781	+	11,511	A. Deb.	82	2	4	Nil
	Argentine Transandine ..	—	—	—	—	—	—	—	—	—	—	6 p.c. Deb.	8	75	72½	51½
	Bolivar	174	Jan., 1939	3,400	—	200	4	3,400	3,600	—	200	Bonds	10	4	5	91½
	Brazil	—	—	—	—	—	—	—	—	—	—	Ord. Stk.	612	31½	4	Nil
	Buenos Ayres & Pacific ..	2,806	18.2.39	112,903	+	682	34	2,736,047	2,847,274	—	111,227	Mt. Deb.	151	8	14	Nil
	Buenos Ayres Central ..	190	4.2.39	883,900	—	828,400	32	83,474,300	83,933,200	—	8458,900	Ord. Stk.	175	81	91½	Nil
	Buenos Ayres Gt. Southern ..	5,082	18.2.39	181,948	—	26,923	34	4,678,597	4,894,664	—	216,067	Ord. Stk.	12½	5	8	Nil
	Buenos Ayres Western ..	1,930	18.2.39	55,707	+	7,940	34	1,460,483	1,552,606	—	92,123	"	131½	5½	9	Nil
	Central Argentine	3,700	18.2.39	156,268	+	40,487	34	3,854,076	4,255,396	—	401,320	"	6	21½	31½	Nil
	Do.	—	—	—	—	—	—	—	—	—	—	Ord. Stk.	3	14	15	Nil
	Cent. Uruguay of M. Video ..	972	11.2.39	19,660	—	2,466	33	596,507	576,309	+	20,198	Ord. Inc.	3½	5½	21	Nil
	Cordoba Central	1,218	—	—	—	—	—	—	—	—	—	Stk.	28	22½	21	9½
	Costa Rica	188	Dec., 1938	26,266	—	5,618	26	138,866	155,206	—	16,340	1 Mt. Db.	105½	104	103½	51½
	Dorada	70	Jan., 1939	13,300	—	4,400	4	13,300	17,700	—	4,400	Ord. Stk.	71½	31½	41½	Nil
	Entre Rios	810	18.2.39	13,927	—	1,495	34	532,850	493,073	+	39,777	Ord. Sh.	31/—	1/—	—	Nil
	Great Western of Brazil ..	1,092	18.2.39	11,100	—	2,600	7	83,300	68,500	+	14,800	1st Pref.	6d.	6d.	1½	Nil
	International of Cl. Amer. ..	794	Dec., 1938	\$558,024	+	\$83,363	52	\$5,639,240	\$5,699,442	—	\$60,202	Stk.	8	61½	71½	Nil
	Interoceanic of Mexico ..	—	—	—	—	—	—	—	—	—	—	Ord. Stk.	4	1	11½	Nil
	La Guaira & Caracas	224	Jan., 1939	4,750	+	140	4	4,750	4,610	+	140	"	7½	1½	1½	Nil
	Leopoldina	1,918	18.2.39	22,060	+	3,384	7	152,716	136,767	+	15,949	Ord. Sh.	52½	19½	15½	61½
Mexican	483	14.2.39	\$334,500	—	\$3,400	6	\$1,899,700	\$1,975,800	—	\$76,100	Pr. Li. Stk.	60	55½	47½	12½	
Midland of Uruguay	319	Jan., 1939	9,886	—	2,743	31	64,165	65,353	—	1,188	Pref.	5½	1½	24	Nil	
Nitrate	386	15.2.39	5,245	—	3,072	6	14,118	24,747	—	10,629	Pr. Li. Db.	23	20	19½	Nil	
Paraguay Central	274	18.2.39	\$2,633,000	+	\$200,000	34	\$102,861,000	\$105,774,000	—	\$2,913,000	Ord. Stk.	64	28	22½	17½	
Peruvian Corporation	1,059	Jan., 1939	68,313	—	15,436	31	477,766	587,785	—	110,019	Ord. Sh.	15½	1½	1	10	
Salvador	100	11.2.39	644,500	+	14,750	33	6636,464	6620,875	+	115,589	Ord. Sh.	3	1	2	Nil	
San Paulo	1,534	12.2.39	30,315	—	5,000	6	170,838	195,601	—	24,763	Deb. Stk.	2	1	2	Nil	
Taitai	160	Jan., 1939	3,870	—	2,425	31	20,785	28,830	—	8,045	—	—	—	—	—	
United of Havana	1,353	18.2.39	45,834	—	7,838	34	624,133	682,744	—	58,611	—	—	—	—	—	
Uruguay Northern	73	Jan., 1939	983	—	106	31	7,438	6,437	+	1,001	—	—	—	—	—	
Canada	Canadian National	23,721	14.2.39	637,187	—	5,907	6	3,968,927	3,959,197	+	9,730	Perp. Dbs.	72	60	70½	51½
	Canadian Northern	—	—	—	—	—	—	—	—	—	4 p.c.	104	90	97½	41½	
	Grand Trunk	—	—	—	—	—	—	—	—	—	Ord. Gar.	87½	41½	5	Nil	
	Canadian Pacific	17,186	14.2.39	439,800	—	17,000	6	2,836,400	2,983,400	—	147,000	—	—	—	—	—
India	Assam Bengal	1,329	31.1.39	51,742	+	5,083	45	1,257,879	1,156,623	+	101,256	Ord. Stk.	811½	70	741½	4
	Barsi Light	202	31.1.39	4,642	+	300	45	118,492	114,712	+	3,780	Ord. Sh.	601½	541½	551½	75½
	Bengal & North Western ..	2,108	31.1.39	93,878	+	3,856	18	960,292	938,913	+	21,379	Ord. Stk.	311	278	269	61½
	Bengal Dooars & Extension ..	161	31.1.39	4,244	+	286	45	127,493	124,920	+	2,573	"	89	83	88½	75½
	Bengal-Nagpur	3,268	31.1.39	231,600	—	4,319	45	5,790,409	5,851,400	—	60,991	"	95½	90	93½	41½
	Bombay, Baroda & Cl. India ..	3,085	10.2.39	266,100	—	5,850	47	7,536,450	7,631,025	—	94,575	"	1127½	95	107½	59½
	Madras & Southern Mahratta ..	2,967	31.1.39	175,350	+	11,301	45	4,652,874	4,402,479	+	250,395	"	109	97	101½	7½
	Rohilkund & Kumaon	571	31.1.39	18,414	—	1,497	18	178,040	175,820	—	2,220	"	308	285	275	69½
	South Indian	2,531½	31.1.39	122,961	—	8,883	45	3,423,832	3,501,502	—	77,670	"	104	101	101½	41½
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Various	Beira-Umtali	204	Dec., 1938	85,945	—	4,434	13	250,250	276,730	—	26,480	—	—	—	—	—
	Egyptian Delta	620	31.1.39	6,765	—	629	45	191,554	203,112	—	11,558	Prf. Sh.	7½	5/6	1½	Nil
	Kenya & Uganda	1,625	Jan., 1939	249,402	—	34,642	4	249,402	284,044	—	34,642	B. Deb.	49	41	43½	95½
	Manila	—	—	—	—	—	—	—	—	—	Inc. Deb.	93½	89	93	41½	
	Midland of W. Australia ..	277	Dec., 1938	16,406	+	1,202	26	92,286	84,335	+	7,951	—	—	—	—	—
	Nigerian	1,900	7.1.39	63,738	—	9,574	41	1,549,944	2,189,006	—	639,062	—	—	—	—	—
	Rhodesia	2,442	Dec., 1938	392,771	—	28,871	13	1,172,139	1,317,239	—	145,100	—	—	—	—	—
	South Africa	13,285	11.2.39	587,751	—	45,754	45	28,238,463	29,244,575	—	1,006,112	—	—	—	—	—
Victoria	4,774	Nov., 1938	809,628	—	62,552	22	3,874,553	3,832,461	+	42,092	—	—	—	—	—	

NOTE.—Yields are based on the approximate current prices and are within a fraction of $\frac{1}{16}$

† Receipts are calculated @ 1s. 6d. to the rupee

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements are based on the current rates of exchange and not on the par value